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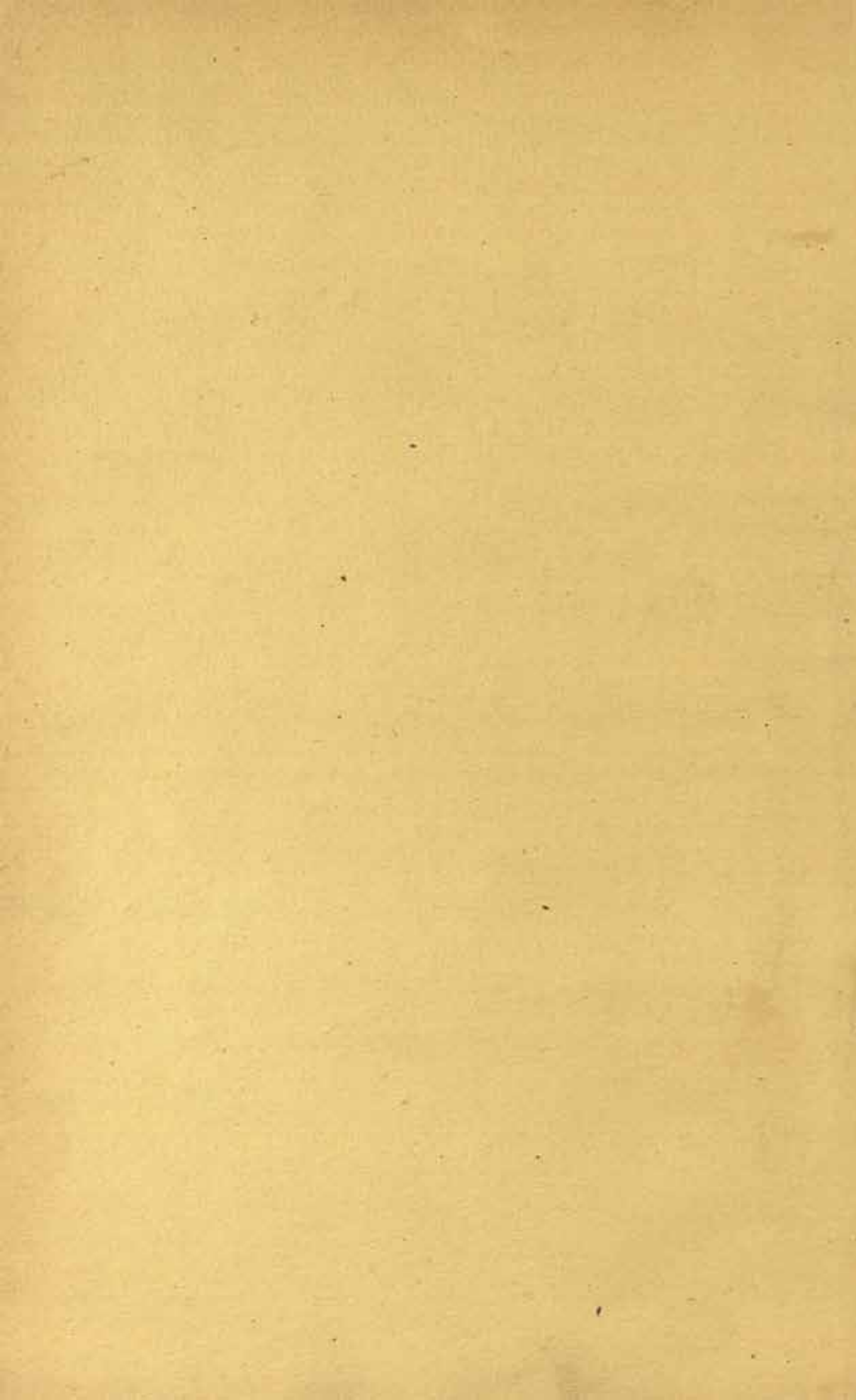
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NOTICE.

To facilitate reference to the contents of this *Journal*, and to make it a more convenient record of the work of the Institute, the Council has authorised the following amendment of its form :—

Each volume of the *Journal* will henceforth contain the papers presented to the Institute between January and December of the calendar year; and the President's Address, delivered at the Annual Meeting in January, will form the introduction to each volume.

Consequently the latter part of Vol. XXIX (= Vol. II of the new royal octavo series) contained only those papers which were presented before the end of 1899; while Vol. XXX (= Vol. III of the new series) contains those which are presented between January and December, 1900; and opens with the President's Address delivered in January, 1900.

For convenience of reference, also, greater prominence is given to the number of a volume in continuation of the old series, than to its number in the new (royal octavo) series. Thus the current volume is described as Vol. XXX (= New Series, Vol. III).

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- 1868 Price, F. G. Hilton, Esq., F.S.A., F.G.S., F.R.G.S., 17 *Collingham Gardens, S.W.* (§)
- 1863 Pusey, S. E. B. Bouverie, Esq., F.R.G.S., 18 *Bryanston Street, Portman Square;* and *Pusey House, Faringdon, Berks.*
- 1891 Pye, Randall H., Esq., *Selbourne, 15 Castle Bar Road, Ealing.* (§)
- 1899 Quick, Arthur, Esq., 33 *Brixton Hill, S.W.*
- 1899 Randall-MacIver, David, Esq., M.A., *Wolverton House, Clifton, near Bristol.* (§)
- 1868 Ransom, Edwin, Esq., F.R.G.S., 24 *Ashburnham Road, Bedford.* (*)
- 1866 Rao, The Hon. Rajah Sir Goday Naraen Gajapati, *Vizagapatam, India.*
- 1883 Ravenstein, Ernest G., Esq., F.R.G.S., 2 *York Mansions, Battersea Park, S.W.* (§)
- 1890 Ray, Sidney H., Esq., 218 *Balfour Road, Ilford, Essex.* (§)
- 1875 Read, Charles H., Esq., F.S.A., VICE-PRESIDENT, Keeper of British and Mediaeval Antiquities and Ethnography, British Museum, Foreign Associate of the Anthropological Society of Paris, 22 *Carlyle Square, Chelsea.* (§§)
- 1886 Reid, Robert William, Esq., M.D., Professor of Anatomy in the University of Aberdeen, 37 *Albyn Place, Aberdeen.*
- 1863 Renshaw, Charles J., Esq., M.D., *Ashton-on-Mersey, Manchester.* (*)
- 1901 Ridgeway, W., Esq., Disney Professor of Archaeology, *Caius College, Cambridge.* (§)
- 1893 Rigg, Herbert, Esq., 13 *Queen's Gate Place, S.W.*; and *Walkurst Manor, Horsham.*
- 1850 Ripon, The Most Hon. the Marquis of, K.G., G.C.S.I., C.I.E., D.C.L., F.R.S., 9 *Chelsea Embankment, S.W.*; and *Studley Royal, Ripon.*
- 1889 Risley, H. H., Esq., C.I.E., M.A., *Bengal Secretariat, Calcutta.* (§)
- 1900 Rivers, W. H. R., Esq., M.D., *St. John's College, Cambridge.* (§§)
- 1892 Robinson, Louis, Esq., M.D., 61 *Killiesser Avenue, Streatham Hill, S.W.*
- 1901 Rose, H. A., Census Superintendent, *Simla, India.*

Year of
Election.

- 1882 Roth, Henry Ling, Esq., 32 Prescott Street, Halifax. (¶)
- 1882 Rothschild, Hon. Nathaniel C., Tring Park, Tring, Herts. (*)
- 1899 Rücker, Miss S. C., 4 Vanbrugh Terrace, Blackheath, S.E.
- 1871 Rudler, F. W., Esq., F.G.S., VICE-PRESIDENT, Corresponding Member of the Anthropological Society of Paris, 25 Mornington Crescent, N.W. (¶§)
- 1863 Salting, W. S., Esq., F.R.G.S., 40 Berkeley Square, W. (*)
- 1864 Sanders, Alfred, Esq., F.L.S., F.Z.S., The Hawthorns, Caterham Valley, Surrey. (¶¶)
- 1886 Sarawak, H.H. the Ranee of, Kuching, Borneo, via Singapore.
- 1876 Sayce, Professor A. H., M.A., LL.D., Queen's College, Oxford. (¶¶)
- 1899 Scanlan, William R., Esq., Crickfield, Hayward's Heath.
- 1900 Seligmann, Charles G., Esq., 23 Vincent Square, S.W.
- 1885 Seton-Karr, H. W., Esq., 31 Lingfield Road, Wimbledon. (¶)
- 1866 Shaw, Lieut-Colonel F. G., Heathburn Hall, Carrigaline, Co. Cork. (*)
- 1901 Shelford, R., Esq., Sarawak Museum, Kuching; Hill House, Guildford.
- 1898 Shrubsall, Frank Charles, Esq., M.A., 34 Lime Grove, Uxbridge Road. (¶¶§)
- 1901 Skeat, W. W., Esq., M.A., 2 Salisbury Villas, Cambridge.
- 1866 Skues, F. M., Esq., M.D., Brigade Surgeon-Major, 51 Kingstead Road, Catford. (*)
- 1898 Small, James Willoughby, Esq., Principal Victoria College, Jaffna, Ceylon.
- 1865 Smith, Worthington G., Esq., F.L.S., 121 High Street, Dunstable. (¶)
- 1893 Somerville, Lieutenant Boyle T., R.N., H.M.S. "Triton," Chatham. (¶)
- 1867 Southby, Philip, Esq., F.Z.S., Barrister-at-Law, Bampton, Faringdon. (*)
- 1889 Southesk, The Right Hon. the Earl of, K.T., Kinnaird Castle, Brechin, N.B.
- 1886 Stanley, W. F., Esq., F.G.S., Cumberlow, South Norwood, S.E. (¶)
- 1873 Stanmore, The Right Hon. Lord, G.C.M.G., K.C.B., D.C.L., Red House, Ascot.
- 1880 Stephens, Henry Charles, Esq., M.P., F.L.S., F.G.S., F.C.S., Avenue House, Church End, Finchley, N.; and 4 Carlton Gardens, S.W. (*)
- 1892 Stephenson, Miss Rose, The Hermitage, Duppas Hill, Croydon.
- 1881 Stopes, H., Esq., 11 Queen Victoria Street, E.C. (¶¶)
- 1887 Straker, Joseph, Esq., Dipton House, Riding Mill, Northumberland.
- 1883 Streeter, E. W., Esq., F.R.G.S., F.Z.S., 2 Park Crescent, W. (*)
- 1865 Swinburne, Algernon Charles, Esq., The Pines, Putney Hill, S.W.
- 1899 Swynnerton, Fred, Esq., Oakwood Place, Simla, India.
- 1899 Tabor, Charles James, Esq., White House, Knott's Green, Leyton, Essex.
- 1892 Taylor, Frederick, Esq., 250 West 76th Street, New York City, U.S.A. (*)
- 1879 Temple, Lieut-Colonel R. C., C.I.E., Chief Commissioner Andaman and Nicobar Islands, Government House, Port Blair, Andaman Island; c/o H. S. King & Co. (¶)
- 1881 Thane, George Dancer, Esq., Professor of Anatomy in University College, London, University College, Gower Street, W.C. (¶¶)

Year of
Election.

- 1884 Thomas, Oldfield, Esq., F.R.S., F.Z.S., 9 *St. Petersburg Place, Bayswater Hill, W.* (¶)
- 1873 Thompson, J. Barclay, Esq., M.A., Lee's Reader in Anatomy, 39 *St. Margaret's Road, Oxford.* (*)
- 1890 Thomson, Arthur, Esq., M.A., M.B., Professor of Human Anatomy in the University of Oxford, *The Museum, Oxford.* (¶)
- 1882 Thurn, Everard F. im, Esq., 1 *East India Avenue, E.C.* (¶§)
- 1896 Tims, H. W. Marett, Esq., M.D., 19 *Lyndewood Road, Cambridge.*
- 1899 Tocher, James F., Esq., F.I.C., *Chapel Street, Peterhead, N.B.* (¶)
- 1895 Tolley, Richard Mentz, Esq., F.H.S., c/o *Durlaston Steel and Iron Works, South Staffordshire.*
- 1901 Travers, Major John A., *Field Place, Horsham, Surrey.*
- 1885 Tregear, Edward, Esq., Secretary, Department of Labour, *Tinakou Road, Wellington, New Zealand.* (¶)
- 1879 Trotter, Countts, Esq., F.G.S., 10 *Randolf Crescent, Edinburgh.*
- 1891 Tsuboi, S., Esq., *Science College, Imperial Institute, Tokyo, Japan.* (*)
- 1889 Turner, Sir William, M.B., LL.D., D.C.L., F.R.S. Lond. and Edin., Professor of Anatomy in the University of Edinburgh, 6 *Eton Terrace, Edinburgh.* (¶)
- 1867 Tylor, Edward Burnett, Esq., D.C.L., LL.D., F.R.S., VICE-PRESIDENT, Professor of Anthropology, Keeper of the University Museum, Oxford, *The Museum House, Oxford.* (¶§)
- 1891 Tylor, Mrs. E. B., *The Museum House, Oxford.*
- 1891 Waddell, Lt.-Col. L. A., LL.D., 35 *Dartmouth Park Road, Highgate Road, N.W.* (¶¶)
- 1901 Waddington, S., Esq., B.A., 47 *Connaught Street, Hyde Park, W.*
- 1863 Wake, C. S., Esq., Foreign Member of the Anthropological Institute of New York, 411 *East 45th Street, Chicago, Illinois, U.S.A.*
- 1874 Walhouse, M. J., Esq., 28 *Hamilton Terrace, St. John's Wood, N.W.* (¶)
- 1866 Wallace, A. R., Esq., D.C.L., F.R.S., F.L.S., F.R.G.S., F.Z.S., *Corfe View, Parkeston, Dorset.* (¶)
- 1891 Ward, Herbert, Esq., 53 *Chester Square, S.W.* (¶)
- 1897 Webster, John Aplin, Esq., 21 *Castle Street East, Oxford Street, W.*
- 1901 Webster, W. D., Esq., *Home Court, Palace Road, Streatham Hill.*
- 1895 Wells, Samuel, Esq., F.R.G.S., *Richmond, Yorks.*
- 1901 White, Franklin, Esq., *P.O. Box 669, Bulucayo.*
- 1897 White, Rashleigh Holt, Esq., M.A. Oxon, *Warren Wood, Bexley Heath, Kent.*
- 1901 Williams, J. W., Esq., M.R.C.S., L.R.C.P. Lond., F.L.S., 128 *Mansfield Road, Gospel Oak, N.W.*
- 1869 Winwood, Rev. H. H., M.A., F.G.S., 11 *Cavendish Crescent, Bath.*
- 1901 Withers, A. Delisle, Esq., *Eushurst, 21 Lichfield Road, Kew Gardens.*
- 1881 Wolfe, Miss E. S., *High Broom, Crowborough, Sussex.* (*)

SOCIETIES, ETC., EXCHANGING PUBLICATIONS

WITH THE

ANTHROPOLOGICAL INSTITUTE.

GREAT BRITAIN AND IRELAND.

Dublin... Royal Dublin Society.
 — Royal Irish Academy.
Edinburgh... Royal College of Physicians.
 — Royal Society of Edinburgh.
 — Society of Antiquaries of Scotland.
Glasgow... Philosophical Society.
London... British Medical Association.
 — Egypt Exploration Fund.
 — Folklore Society.
 — Geologists' Association.
 — Hellenic Society.
 — India Office, Whitehall.
 — Japan Society.
 — Journal of Mental Science.

London... Nature.
 — Palestine Exploration Fund.
 — Quatuor Coronati Lodge, No. 2076.
 — Royal Archaeological Institute.
 — Royal Asiatic Society.
 — Royal Colonial Institute.
 — Royal Geographical Society.
 — Royal Society.
 — Royal Society of Literature.
 — Royal Statistical Society.
 — Royal United Service Institution.
 — Society of Antiquaries.
 — Society of Biblical Archaeology.
Truro... Royal Institution of Cornwall.

EUROPE.

AUSTRO-HUNGARY.

Agram... Kroätische Archäologische Gesellschaft.
Budapest... Magyar Tudományos Akadémia.
 — Magyar Nemzeti Múzeum Néprajzi és Ostálya.
Cracow... Akademija Umiejetności.
Vienna... Anthropologische Gesellschaft.
 — K. Akademie der Wissenschaften.
Sarajevo... Landesmuseum (Wissenschaftliche Mitteilungen aus Bosnien).

BELGIUM.

Brussels... Académie Royale des Sciences, etc. de Belgique.
 — Société d'Anthropologie de Bruxelles.
 — Société d'Archéologie de Bruxelles.

DENMARK.

Copenhagen... Société des Antiquaires du Nord.

FRANCE.

Lyons... Société d'Anthropologie de Lyon.

Paris... L'Anthropologie.
 — École d'Anthropologie.
 — Revue de l'Histoire des Religions.
 — Société d'Anthropologie.
 — Année Sociologique.

GERMANY.

Berlin... Berliner Gesellschaft für Anthropologie, Ethnologie, und Urgeschichte.
 — R. Museum für Völkerkunde.
 — Seminar für Orientalische Sprachen.
Halle-a-d-Saale... Kaiserliche Leopoldina Carolina Akademie der Deutschen Naturforscher.
 — Deutsche Morgenländische Gesellschaft.
Kiel... Anthropologischer Verein für Schleswig-Holstein.
Leipzig... Verein für Erdkunde.
Munich... Deutsche Gesellschaft für Anthropologie, Ethnologie, und Urgeschichte.
Stettin... Centralblatt für Anthropologie, etc.

Stuttgart... Zeitschrift für Morphologie und Anthropologie.

GREECE.

Athens... Archaiologikè Hetairia.

— British School of Archæology.

ITALY.

Florence... Società Italiana di Antropologia, Etnologia, e Psicologia Comparata.

Rome... Bullettino di Paletnologia Italiana.

— Società Romana di Antropologia.

Rome... Accademia dei Lincei.

Turin... Archivio di Psichiatria.

NETHERLANDS.

Amsterdam... Koninklijke Akademie van Wetenschappen.

Leiden... Internationales Archiv für Ethnographie.

The Hague... Koninklijk Instituut voor de Taal-, Land-, en Volkenkunde van Nederlandsch Indië.

RUSSIA.

Moscow... Imper. Obschestvo Lubitelei Iestestvoznania, Antropologii, i Etnografii.

St. Petersburg... Imper. Akademia Nauk.

SWEDEN.

Stockholm... Academy of Antiquities, National Museum.

— Nordiska Museet.

— Ymer.

PORTUGAL.

Lisbon... Portugal em Africa.

Porto... Portugalia.

AFRICA.

Cape Town... S. African Philosophical Society.

AMERICA.

CANADA.

Montreal... Royal Society of Canada.

Toronto... Canadian Institute.

UNITED STATES.

Cambridge, Mass... Peabody Museum, Science.

Chicago... American Antiquarian.

— Field Columbian Museum.

New York... American Museum of Natural History.

Philadelphia... Free Museum of Science and Art (University of Philadelphia, Department of Archæology).

Washington... American Anthropologist.

— Bureau of Ethnology.

— Smithsonian Institution.

— United States Geological Survey.

— United States National Museum.

Worcester, Mass... American Journal of Psychology.

ASIA.

CHINA.

Shanghai... Royal Asiatic Society (China branch).

INDIA.

Bombay... Anthropological Society.

— Indian Antiquary.

Calcutta... Bengal Asiatic Society.

Colombo... Royal Asiatic Society (Ceylon branch).

JAPAN.

Tokio... Asiatic Society of Japan.

— Tokio-Daigaku (Imperial University).

JAVA.

Batavia... Bataviaasche Genootschap van Kunsten en Wetenschappen.

STRAITS SETTLEMENTS.

Singapore... Royal Asiatic Society (Straits Branch).

AUSTRALIA AND PACIFIC.

Honolulu... Bernice Panahi Bishop
Museum.
Melbourne... Royal Society of Victoria.
Sydney... Australian Museum.

Sydney... Australasian Association for
the Advancement of Science.
— Royal Society of New South Wales.
Wellington, N.Z... Polynesian Society.

PUBLICATIONS RECEIVED IN EXCHANGE FOR "MAN."

ENGLAND.

London... Church Missionary Intelli-
gencer.
— Journal of the East India Association.
— Lancet.
— South American Missionary Maga-
zine.

AUSTRIA.

Prag... Český Lid.

BELGIUM.

Ghent... Volkskunde.

FRANCE.

Paris... Revue des Traditions Populaires.
— Melusine.

GERMANY.

Brunswick... Globus.
Dresden... Bericht des Vereins für
Erdkunde.
Munich... Korrespondenzblatt.
— Jahresbericht der Geographischen
Gesellschaft.
Nürnberg... Bericht der Natur-historis-
chen Gesellschaft.

PORTUGAL.

Lisbon... Archeologo Português.
Serpa... A Tradição.

SERVIA.

Alexinatz... Karadjitch.

SWITZERLAND.

Zürich... Schweizerisches Archiv für
Volkskunde.

UNITED STATES.

Boston... American Journal of Archæ-
ology.
Chicago... Open Court.
Meriden... Biblia.
New York... Appleton's Popular Science
Monthly.
Philadelphia... Proceedings of American
Philosophical Society.

NEW SOUTH WALES.

Sydney... Science of Man.



LONDON:

HARRISON AND SONS, PRINTERS IN ORDINARY TO HER LATE MAJESTY,
ST. MARTIN'S LANE.



JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF GREAT BRITAIN AND IRELAND.

ANNUAL GENERAL MEETING.

JANUARY 30TH, 1900.

C. H. READ, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Anniversary Meeting were read and signed.

The CHAIRMAN declared the ballot open, and appointed, as Scrutineers, Mr. H. Stopes and Rev. H. N. Hutchinson.

The TREASURER read his Report for the year 1899 which was adopted.

The Report of the Council for 1899 was also read and adopted.

The Election of Miss A. C. BRETON as a Fellow of the Institute was announced.

The PRESIDENT delivered his Anniversary Address.

It was moved by Dr. GARSON, seconded by the TREASURER, and unanimously resolved:—

“That the thanks of the Meeting be given to the President for his Address, and that it be printed in the *Journal* of the Institute.”

The SCRUTINEERS gave in their Report, and the following gentlemen were declared to be duly elected, to serve as Officers and Council for the year 1900.

President.—C. H. Read, Esq., F.S.A.

Vice-Presidents.

A. J. Evans, Esq., M.A., F.S.A. | Wm. Gowland, Esq., F.S.A.

A. P. Maudslay, Esq.

Secretary.—J. L. Myres, Esq., M.A., F.S.A., F.R.G.S.

Treasurer.—A. L. Lewis, Esq., F.C.S.

Council.

G. M. Atkinson, Esq.	Prof. G. B. Howes, LL.D., F.R.S.
H. Balfour, Esq., M.A.	Baron A. von Hügel, M.A.
Wm. Crooke, Esq., B.A.	A. Keith, Esq., M.D.
O. M. Dalton, Esq., M.A., F.S.A.	Sir Hugh Low, G.C.M.G.
R. W. Felkin, Esq., M.D., F.R.G.S.	J. Edge-Partington, Esq.
H. O. Forbes, Esq., LL.D.	Sir C. E. Peek, Bart., M.A., F.S.A.
Prof. A. C. Haddon, M.A., Sc.D., F.R.S.	R. H. Page, Esq.
E. Sidney Hartland, Esq., F.S.A.	E. G. Ravenstein, Esq., F.R.G.S.
Col. Sir T. H. Holdich, K.C.I.E., C.B.	F. C. Shrubsall, Esq., M.A.
T. V. Holmes, Esq., F.G.S.	Prof. A. Thomson, M.A., M.B.

Assistant Secretary.—J. A. Webster, Esq.

A vote of thanks to the Officers and Councillors, as well as to the Auditors and Scrutineers, was moved, seconded, and carried by acclamation.

TREASURER'S REPORT FOR 1899.

The income of the Institute for the year 1899 was £524 8s. 1d., being £60 less than the income for 1898. This difference is fully accounted for by the facts that in 1898 we received three life compositions, amounting to £63, and that in 1899 we did not receive any. There is also a large diminution in the amount received for subscriptions in arrear, but that is because most of what was to be obtained from that source was got in in 1898. This latter diminution is counter-balanced by an increase in the amount received from sales of publications, an increase which however is not caused by popular appreciation of the improvements in our *Journal*, but by the publication of double numbers bringing five quarters into our publishers' account for the year as against three quarters in the preceding year.

The expenditure during the year 1899 was £590 3s. 11d., which, though £32 5s. 9d. less than in 1898, is £65 15s. 10d. more than the income for the year. The *Journal* has cost us about £50 less than in 1898, partly I think in consequence of the cheaper but not less efficient processes of producing illustrations which are now practicable, but there have been slight increases in our general expenses, due in some measure to our having held three more meetings in the session 1898-9 than in that for 1897-8. The desire of the Council is to give our members as much as possible for their subscriptions in the shape of meetings and publications, but our printers have already picked the last bone of our Tasmanian skeleton, and are now swallowing up our Tasmanian busts, and I hope therefore that our members will do all they can before the end of the century to provide them with fresh and more appetising sources of supply.

**CENTRAL ARCHAEOLOGICAL
LIBRARY, NEW DELHI.**

Acc. No.

Date.

Call No.

ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

Receipts and Payments for the Year 1899.

RECEIPTS.

BALANCES, 1st January, 1899 :

Cash at Bank.....
Less reserved for proportion of double number
of Journal.....

Petty Cash.....

Less balance of *Notes and Queries* account.....

SUBSCRIPTIONS :

For the year 1899.....
Arrears.....
For 1900 in advance.....

SALE OF PUBLICATIONS :

Messrs. Kegan Paul & Co. (July 1, 1898, to
June 30, 1899).....
Office Sales.....

DIVIDENDS for one year on Metropolitan Consolidated
3½ per cent. Stock (less Income Tax).....

INCOME TAX recovered (less cost of recovery).....
" ANTHROPOLOGICAL NOTES AND QUERIES " :

Balances as per last account.....
Sales during 1899.....
British Association on account of new edition.....

Less paid British Association, balance of old
account.....

16th January, 1900.

PAYMENTS.

RENT (including Coal and Gas) for one year to
Michaelmas, 1899.....

PRINTING JOURNAL, Nos. 1 to 4, New Series, including
illustrations and Authors' copies.....
Less received from N. Brown, Esq., in respect
of Mr. Leith's plate of South Africa imple-
ments.....

SALARIES AND COLLECTOR'S COMMISSION

HOUSE EXPENSES :
Attendance and Refreshments at Meetings.....
Cleaning rooms, etc.....

STAMPS AND PARCELS

PRINTING AND STATIONERY.....
LANTERN (materials and hire).....
REPAIRS, ETC.....
INSURANCE AND SUNDRIES.....
BOOKBINDING.....

BALANCES, 31st December, 1899 :

Cash at Bank.....
Less reserved for proportion of double number
of Journal (as per contra).....

Petty Cash.....

Examined and found correct,

(Signed) M. J. WALHOUSE, }
ROBERT R. HOLT, } *Auditors.*

The liabilities at the end of 1899 (other than our moral liability to life members) were:—

	£	s.	d.
Rent, etc., for one quarter	33	15	0
Double number of <i>Journal</i> , illustrations, miscellaneous printing, and sundries estimated at	145	18	0
<i>Anthropological Notes and Queries</i> ...	40	7	0
	<hr/>		
	£220	0	0
	<hr/>		

The assets at the same date were:—£600 Metropolitan 3½ per cent. Consolidated Stock (worth about £672), cash in hand and at the Bankers, £151 12s. 5d., some unpaid subscriptions, and the library, furniture, and stock of publications.

A. L. LEWIS, *Treasurer*.

REPORT OF THE COUNCIL OF THE ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND FOR THE YEAR 1899.

During the year under report, eleven Ordinary Meetings were held, and one Special Meeting in conjunction with the Folklore Society. At the latter a collection of anthropological and folklore objects collected in Mexico and presented to the Folklore Society, which are for the present deposited at the University Museum, Cambridge, were exhibited and described by the donor, Professor F. Starr, of Chicago.

It has been the object of the Council during the year to make the Evening Meetings more instructive and popular. Numerous collections of specimens have been exhibited, and the papers have been, as far as possible, illustrated by lime-light views. The Council are indebted to Dr. J. G. Garson for his assistance in working the lantern. This has led to improved attendance of Fellows and visitors, and the Council hope that this improvement will be maintained during the coming year.

Four parts of the new series of the *Journal* have been issued during the year, two in May and two in November. The Council have received many expressions of approval regarding the new *Journal*, which, in importance of communications, number of illustrations and general artistic appearance, is a great improvement on the previous issue.

The Council also call special attention to the issue of the revised edition of *Anthropological Notes and Queries*, prepared by the President Mr. C. H. Read and Dr. J. G. Garson. The book in its new form promises to be of special value for the direction of inquiries by explorers in various parts of the world.

On the whole, the numbers of Fellows have been well maintained. The membership of the Institute in the previous year consisted of 49 Honorary,

26 Corresponding, 83 Compounding and 215 Ordinary Fellows. We have lost 1 Honorary and 2 Corresponding Fellows. The loss of 8 Ordinary Fellows has been more than balanced by 22 new Elections. There has thus been a net increase of 13 in the number of our Fellows.

Among the losses which the Council regret to announce are, among the Honorary Members, those of Dr. J. Brinton, the eminent American anthropologist; of Corresponding Members, Professor Rygh, of Christiania, and Dr. Ludwig, of Darmstadt; of Ordinary Members, Sir W. H. Flower and Mr. Bernard Quaritch.

The Council again appeals to its Fellows to impress upon all British travellers and explorers the urgent need of increased numbers of working Fellows if the Institute is to carry on with success those studies so essential to the progress and welfare of our Colonial Empire.

The Library Committee reports that the Library grows steadily both by exchanges and by frequent donations by authors and publishers of books intended for review in the *Journal*. During the current year, 76 volumes have been presented, and 32 British, 11 Colonial and Indian, and 50 Foreign periodicals have been acquired by exchange; making a total number of 169 volumes or parts. With the small grant at their disposal for binding (only £5) the Committee has been able not only to keep abreast of current acquisitions in the series which are already partly bound, but also to do something to diminish the great mass of arrears. A beginning has also been made in cataloguing the unbound pamphlets, many of which have hitherto been practically inaccessible, and a large part of the library has been overhauled with the object of providing space for the rapid growth of some of the principal periodicals. The Committee feel that it is time that the Institute should know that before long the existing shelf room will be exhausted; and that within a very few years it will be necessary to consider the question either of a thorough-going revision of the Library with a view to reducing the bulk of what stands on the shelves or of considerable outlay in fresh accommodation for this valuable part of the Institute's property.

During the past year also the collection of photographs, prints, and drawings has been arranged and catalogued by Mr. Myres, and an inventory and subject index are now ready for use in the Library. It is hoped that the Fellows of the Institute will make frequent use of the anthropological illustrations which are thus made accessible, and will contribute copies of any suitable photographs which they may possess, so as to make the collection worthy of the Institute.

PRESIDENTIAL ADDRESS DELIVERED AT THE ANNIVERSARY
MEETING OF THE ANTHROPOLOGICAL INSTITUTE OF GREAT
BRITAIN AND IRELAND. 30TH JANUARY, 1900.

By C. H. READ, F.S.A.

THE first duty of the President of the Institute at the Annual Meeting is to give so much of a review of the work of the past year as may at any rate help to indicate what amount of progress our subject has made, more particularly as seen in the proceedings and publications of the Institute itself. So far as anthropology in general is concerned, I think that in this country we are approaching a period of considerable activity, and that the seed sown thirty years ago by the great men whose names appear on our records, has now sprung up and will speedily bear good fruit. The persistent advocacy of our doctrines by men like Huxley, General Pitt Rivers, Sir William Flower, Mr. Francis Galton, and Professor Tylor, whose names are familiar to all the world, cannot fail in due course to leave a decided impress on the progress of the subject. The establishment of the Chair of Anthropology and the foundation of the Pitt Rivers Museum at Oxford also will have in the future a more marked influence on the course of scientific study than we have seen even now. It is but yesterday, so to speak, that we were admitted among the sciences, and being thus the youngest of a large family, we must not expect that amount of deference and recognition that is accorded to our elder brothers, though in our hearts we know that Benjamin's portion should be ours. But in order to secure this, it is needful that we do not in any degree relax the efforts that have hitherto been a necessity, and we must be prepared to welcome and publish in an adequate manner the results of the work done by the rising generation of anthropologists who have devoted a part of their time at the University or elsewhere to this branch of science. To do this in a worthy manner a large membership is absolutely necessary, and in urging you to use your endeavours to enlarge the influence of the Institute in this way, I only repeat what I have heard on many occasions from this chair.

I do not see, however, that we have any special cause for despondency at this moment. The Treasurer's report shows, I think, that we have not spent more than we can afford, and with the small income at our disposal it is not possible, even for Mr. Lewis, to make a very brilliant financial statement. The losses by death and resignation also have been more than filled by the election of new members. The only other matter in this category that I need refer to is the number and quality of the communications that have been brought before us, and so far as a part of these is concerned, if not all, you can judge as well as I, for several of them appear in the last number of the *Journal*.

Prehistoric archæology is represented during the year by one paper only, and "eolithic" man has been allowed an interval of repose. Our single contribution is from Mr. George Clinch, and describes a number of dwelling-places of the neolithic age that he had explored for some years past on the borders of Kent and Surrey. Such remains are very subject to destruction from the ordinary operations of agriculture, and it is fortunate when so interesting a group as that described by Mr. Clinch finds a chronicler before it is too late. In British ethnology Dr. Beddoe contributed an interesting note on the mediæval population of Bristol, in which he would account for certain cranial characters by an admixture of French blood, for which there is historical support. He admits that the method he adopts to distinguish English from French by surnames is a rough one; but there is one factor which would imply a liberal discount. It is that in Norman times a great proportion of the well-to-do population would almost certainly possess French titles referring to their calling, such as Dr. Beddoe quotes, Boulenger, Clerk or Leclerc, Bailey and so forth. But I think it would be going too far to assume that every person bearing such a gallicized title was of French blood. Fashion in such matters counts for much, while human nature changes but little in essentials, and I think it would be safer to take for granted that if Mr. Baker found it would improve his business to be called Boulanger or Bullinger, he would make the change, and be in the fashion.

The ethnology of Africa, as might be expected, has occupied a good deal of attention, and we have had no less than six papers relating to various parts of Africa. Two of them dealt with the inner life and superstitions of the West African negro, Mr. Marriott's paper on "Secret Societies," and that of the Count de Cardi on the "Ju-Ju laws of the Niger Delta." The former paper was admittedly in the main a compilation, aided by a short residence in the country; but as I ventured to point out at the time, it is none the less a valuable record of knowledge on that account. Many of us have had good reason to be grateful to the laborious searcher who has gathered into the modest compass of a single paper all the valuable facts on our special subject from the little used pages of hundreds of bulky volumes. Whether or no Mr. Marriott is right in thinking that the English governor should try to direct the secret societies of West Africa into decent and useful channels is beyond my power to answer. But as the native's slightest act is governed by the laws of these societies, it is clear that they are a force that any government will have to reckon with, and if Mr. Marriott has helped ever so little in this direction he will have done a useful work.

Colonel Macdonald's paper, or as he modestly called it, notes, on the ethnology of the tribes met with on the Juba Expedition will be found of great importance and interest by anyone studying the very complex relations of the inhabitants of this portion of Africa. We have to regret that Colonel Macdonald was unable to be present to read it himself. The name of Dr. Westermarck is of itself a sufficient guarantee that his views on the nature of the Arab *Ginn* would be worth hearing, and it is a matter for congratulation that one of the first-fruits of his

study of the ethnology of Morocco has been brought before us. The notes of Dr. Kingston on the remains of human industry found in the Knysna caves in South Africa seemed to me to be of special interest, though the writer made no pretensions to giving an exhaustive review of his subject. From his statements it appeared to be quite certain that the very rude stone implements found in these caves were the productions of previous generations of existing natives. Had they been found under other conditions there would have been great temptations to make rudeness of form and a remote antiquity go together. I have a strong impression that it will be found that the stone implement question in Africa generally will have to be studied on its merits and independently of the familiar classification of more northern lands, and I shall not be surprised if it should turn out that the mass of so-called palæolithic types found in various parts of the African continent are in reality of comparatively recent origin.

I must not forget a tribute of praise to Dr. Bennett for his admirable, though all too short, account of the cannibal Fang of Western Africa, a type of what such field work should be. This interesting tribe of people, one of whose peculiarities is that they use the crossbow, have been much written about before in a picturesque fashion, but it remained for Dr. Bennett to give us the plain unvarnished tale of their daily life, told as only he can tell it who has become their trusted friend.

Colonel Sir Thomas Holdich gave us two very graphic papers on the "Tribes on the North-West Frontier of India," whose good or ill humour makes so much difference to the comfort of our government there. It is pleasant to think that there seems to be no prospect of trouble in that quarter at the present moment, thanks to the men of the stamp of Sir Thomas Holdich. From our Secretary, Mr. Crooke, we had an excellent *resumé* of the survivals of primitive methods of disposing of the dead in India, a subject on which he is well qualified to speak. It is one of the most important in the study of racial affinities, for it is one of the customs which all folk whether primitive or civilized change with the greatest reluctance. Another Indian authority, Colonel Temple, has given us a most interesting monograph on the "Origins of Currency," a very intricate and difficult subject, but which by lucidity of style and clearness of demonstration Colonel Temple was able to render instructive and easy of understanding.

One of our meetings was held in common with the members of the Folklore Society, a sign of amicable relations which I trust will always be maintained. The special occasion of this was to do honour to Professor Starr, of the University of Chicago, a city in which anthropology seems to hold an ideal position. Professor Starr had made, during sundry visits to Mexico, a collection of objects illustrating Folklore; these he had sent over to England as a gift to the Folklore Society, who in turn have deposited them in the museum at Cambridge. Those members of the Institute who were fortunate enough to be present when Professor Starr gave an account of the collection will, I am sure, agree with me that an evening could scarcely be passed in a more interesting and entertaining fashion.

It is exactly a quarter of a century ago since I had the honour to be elected a member of this Institute, and I recently had the curiosity to read again the excellent address delivered by Dr. Busk, at that time the retiring President, and I found in it some few facts to cheer us, though at the same time the progress of the Institute has not been so marked in all directions as we might fairly have hoped. Dr. Busk was compelled to allude to the state of civil war that at that time divided English anthropologists into two or perhaps more camps. This state of things has fortunately for us passed into the domain of history, and the discussions at our meetings rarely travel beyond the subjects of the papers, to which the members are now able to devote all their energies. The Institute had at that moment just emerged from a period of great financial difficulty, by the liberality of a number of the members, a considerable proportion of whom are happily still among us, and one subject of regret to the President was the inability of the Institute to publish adequately the papers that were presented, such publication being obviously one of its main functions. In this respect we can at the present time claim to have made a distinct advance. The *Journal* in its new form, which has been on its trial since August, 1898, is, I think, a creditable publication, of which we have no need to be ashamed, and the manifest advantages of the larger size in the quality and appearance both of text and plates are justification enough for the change. At the same time we are able to publish all the papers brought before us that are considered worthy of a place in the *Journal*. I can, however, quote one of Dr. Busk's remarks as entirely applicable to our present situation. He said in 1875 that "to enable the Institute to take the position it ought and deserves to occupy, a far more ample revenue than we at present enjoy is indispensably necessary." No truer description of our present condition could be given than this, and it is not pleasant to think that in spite of the firm position that our branch of science now enjoys we should have no better report than this on the condition of the exchequer. It does not seem likely that anthropology will be among the most popular studies of the ordinary Englishman, though many of its branches can claim results that have a very practical bearing on the well-being both of the individual and the community. Popularity, however, is not always a benefit to a serious study, and if it be not too paradoxical I should like to say that while it would be doing good work to popularize anthropology, I doubt whether it would benefit anthropology to be popular, as a science. It would be a far greater service to popularize its results, and in this respect I think the Institute could do good work even with its present limited resources. During the past year I have thought of expedients in this direction, and others have been suggested to me. One of these seems likely to come about in the near future, and this is the delivery of lectures by well known authorities in the various branches of our subject, in memory of one of our most distinguished Presidents, Professor Huxley. Such returns will be independent of and in addition to the ordinary business of the session, and will be of a character to be readily followed and understood without any special acquaintance with the mysteries of anthropological

science. That such lectures can and should be popular is shown by the attendance at the analogous lectures at the Royal Institution and elsewhere, and I can well conceive that to a vast number of people it will come as a surprise that more use has not been made of curious and interesting facts that are now labelled with the uninviting title, Anthropology. It is in this form that I trust popularity will come to us, and not as an interference with our more specialized communications, which must always remain the foundation of our knowledge, and the main reason for our existence. It is clearly out of the question, at the same time, that we can successfully court popularity by their means, and, as I said before, I scarcely think it desirable to try. Many of my audience to-night must have felt more than once the pain that comes to all of us, when a lecturer is sensible that his hearers, sympathetic though they may be, cannot follow his arguments, or are manifestly unfamiliar with the terms or names that he uses, and which the time limit forbids him to explain or amplify. To make such an occurrence impossible in any society is worth an effort, and I believe the institution of the Huxley lectures will do much towards this end here. At the same time, although the scheme indicates that there will be two kinds of audiences, as there will be two kinds of lectures, it must not for a moment be thought that the members of the Institute will be excluded from any of the discussions, or that any of their privileges will be curtailed. On the other hand, these will be considerably increased, and, we trust, to the advantage of everyone concerned.

While I am dealing with this branch of my subject, I wish to remind members of the Institute that they have it in their power to add considerably to the interest of the evening meetings by making small contributions either in the way of exhibiting specimens, and providing a short note, or by sending to the Secretary notes either of recent discoveries or of other matters within our scope. Such unpretending communications not only render the proceedings more interesting, but they might frequently serve the purpose of keeping us more up to date, and add to the permanent value of our *Journal*. Almost every member, moreover, can help in this way, and swell the bulk of useful "Miscellanea."

Library.—We have heard in the Council's report that several valuable additions have been lately made to the Library, and this opens up a prospect which will need the earnest consideration of the Council and officers before very long. Our library, although it can scarcely claim anything like completeness, has yet attained proportions which very nearly equal the shelf-room at present available, and this without counting a quantity of pamphlets which will in due course be bound and placed on the shelves. In our present rooms there is practically no means of extending the library accommodation to any useful extent; on the other hand, the increase of the library is continuous and fairly regular, our exchanges alone requiring a certain number of additional feet of shelving per annum. Thus it is only a matter of the simplest arithmetic to estimate the earliest moment at which we shall reach the end of our tether, and then the very serious question will arise whether it is possible for us to obtain

more room in our present quarters, which will of course involve a corresponding increase in rent; secondly, supposing such an extension of room to be obtainable here, whether we should avail ourselves of it, and bear the additional burden of rent; or thirdly, whether we should try to obtain roomier quarters within our means elsewhere. These are weighty questions, involving a great many incidental difficulties, and the Council will not have an easy task in finding a satisfactory solution. I do not propose even to suggest at this moment which of the alternatives is to be preferred, but I feel it my duty to point out clearly what is before us, and I trust that we shall be able to avoid the painful course that has been followed by one Society in the same conjuncture, that is, to sell the library by auction, a course which for us would, I think, have fatal consequences.

The Council have reported to you the issue of the new edition of the *Notes and Queries on Anthropology* under the editorship of Dr. Garson and myself. As before, the British Association has granted the funds necessary, and to its Council our warm thanks are due for helping us in so practical a way—for it must not be forgotten that we owe many useful papers to the publication of that little book, and it will not be denied that our recent *Journals* have been the richer by its means. While the form and general aspect of the book remains much the same as before, yet Dr. Garson has found it necessary to make very drastic alterations in the physical section, which he had in charge, and I can well believe that during the interval of seven years that has passed since the previous issue, marked advance has been made in the methods of that branch of anthropology, and that the instructions required considerable revision. I do not know that any apology is required from me for leaving my part of the work, dealing with ethnography, without any such severe alteration; but, at the same time, I think it well to point out that while observations in the physical section can only be usefully made by a properly qualified physician or surgeon, the queries on the ethnographical side are purposely so framed as to enable any intelligent and observant person on the spot to deal with them. This difference is an essential one and will serve to explain why the second part of the book is less subject to modification than the first. I am fully aware that there is room for a manual treating ethnography from a severely scientific standpoint, and that this will come in time I do not doubt, but at present I fear it would have a very limited circulation.

While on the subject of the collection of anthropological material, I will take the opportunity of saying a few words on the project of a Bureau of Ethnology, which has been more than once mentioned in this room, and for which I for one venture to anticipate a successful future, in spite of official apathy.

It will be remembered that as long ago as the Liverpool meeting of the British Association I ventured to bring forward a motion on the subject, urging the prompt establishment of a bureau for the collection of anthropological data under the auspices of a Government Department. I laid considerable stress on the utility that such a bureau would have, not only for men of science, but for the Government itself, which would possess, after the lapse of a few years, a great

quantity of valuable information regarding the hundreds of primitive races with whom we either have constant daily relations or with whom we occasionally come into contact. I adduced also the valuable argument that all this work would be done, the results arranged and classified for reference, and at the disposal of the officers of the Government, almost without cost to the State. For it is an essential part of the scheme that the field work of the bureau is to be entirely carried on by the trained men already in Government employ in our distant possessions, and I have good reasons for believing that many such men, naval officers, the trained officials of the Intelligence Branch of the War Office, Commissioners and Administrators in our Colonies and Protectorates, would cheerfully and willingly employ their leisure in this work. Such is a brief outline of the scheme, and I hope you will pardon my repeating it now in case some members of the Institute may not be already acquainted with it. The Council of the British Association received the resolution favourably, a Committee was appointed to consider it, and this Committee recommended that the Trustees of the British Museum should be invited to undertake the working of the bureau. This body was accordingly approached, and I was then informed that if the scheme were to be worked at the British Museum, the bureau of ethnology would be attached to my department. This had by no means been a part of my original programme, but I was clearly bound to accept the additional responsibility. Communications were then opened with the Foreign Office, in order to obtain the sympathetic co-operation of its officers, and I had an interview with Sir Thomas Sanderson, who was favourably impressed with the usefulness of the proposed work, and was good enough to address letters to the chiefs of the Protectorates in East Africa, instructing them to carry out the wishes of the Trustees of the British Museum, so far as it did not interfere with their ordinary duties. This seemed very promising, and in order to begin the work I applied for a clerk to help in the correspondence that I foresaw would soon become a serious item.

After overcoming the objections of the Treasury, who maintained that such work as was contemplated did not appear to be within the scope of the British Museum, the request was finally granted, and a clerk will in due course be appointed, but with a condition. The condition is this: that if the work of the Bureau of Ethnology increases to any considerable extent, it must then be transferred elsewhere.

However this may be, I have thought that the present is a good opportunity to state the course that affairs have followed, for the information of the Institute. It seems that the best policy now is to create so good and useful a department that even the Treasury will see that it could not well be dispensed with, and to this end I will devote my best efforts, and if, as I confidently hope, the bureau be successful, we must then be prepared with a plan for its more extended working, and a habitat in which the work can be carried on.

There is another project that I ventured to put forward in my address at the last meeting of the British Association, viz., the future position of the important

ethnographical collections under my charge at the British Museum. In this matter I had hoped that the few months that had elapsed would have seen some progress; but our national circumstances have been entirely unfavourable, and at the present moment I think it would be both unadvisable and useless to try to educate public opinion with regard to a scheme of this kind. Our counsels and ideas would fall on ears necessarily and rightly pre-occupied with the vital issues now being decided in South Africa, issues the importance of which we recognise to the full, and I am sure that we shall best consult the dignity of our studies by waiting patiently until a successful conclusion has been reached in South Africa, when we can with propriety and more probable success press our views on the Government for the establishment of a properly appointed museum of anthropology. I have ventured to identify the Institute with this scheme, for I know that I have the sympathy and support of the Council, and I am convinced that the foundation of such a museum would form a potent factor in the success of the Institute. I am equally sure that until the national collections of ethnography are in such a position as to admit of their being worked on methods more adapted to the requirements of the subject than is at present possible, we shall never take the scientific position to which our empire is entitled. In this belief, curiously enough, I am supported by more than one of our foreign competitors, who, while they are naturally anxious to increase the treasures of their own museums, at the same time are catholic enough in their views to realize that if England neglects her vast opportunities, while it may be in part their gain, yet it cannot fail to entail ultimate loss in the amount of material available for study.

While we may lament the apathy of the State in anthropological science, there is considerable satisfaction to be derived from the activity seen in centres where the impetus is derived from other sources. At Cambridge great efforts are being made to bring anthropology to the front, by means of expeditions and publication.

The Cambridge Anthropological Expedition to Torres Straits and Sarawak, under the leadership of Dr. A. C. Haddon, returned at the end of May, after a successful mission. The main object of the Expedition was to study the Torres Straits Islanders as completely as possible, and a good deal of work was accomplished in the departments of physical anthropology, psychophysics, linguistics, and general ethnography. Observations have been recorded and collections made which will furnish materials for a monograph on the Islanders, which in due course will be published by the Cambridge University Press. Some of the members of the Expedition visited various portions of the coast of British New Guinea for the purpose of comparing the Torres Straits Islanders with the Papuans and Melanesians of the mainland, and some valuable work was accomplished. Most of the members of the Expedition accepted a very hospitable invitation from Mr. Charles Hose, the President of the Baram District of Sarawak. Here a large number of anthropometric data were obtained, and a good insight into the character and mode of life of various interior tribes of Sarawak was gained. Dr. Haddon has also laid the foundation for a study of the decorative art

of Sarawak and Mr. Ray studied the languages; but it is unnecessary to detail the work done by the several members of the Expedition as the results will eventually be published. Mr. Hose deserves the gratitude of anthropologists, not only for his hospitality to this Expedition, and for placing his unequalled knowledge of and influence with the natives at the disposal of his guests, but for his generosity in giving fine collections illustrating the ethnography of his district to the British Museum, and especially to the University of Cambridge. Mr. Hose is now in England on furlough, and we hope to have the pleasure of learning from him something about the natives whom he governs so wisely.

Mr. W. Skeat, also a Cambridge man, has turned to account his local knowledge of the Malay Peninsula, and has organised an expedition composed of graduates from Oxford and Cambridge to study the fauna, flora, and anthropology of the Malay Peninsula. Very few particulars are yet to hand, but I gather that the expedition has met with considerable success, and a number of ethnographical specimens have already arrived in Cambridge, which will supplement the very fine collection that Mr. Skeat gave to the University three years ago. Unfortunately, Mr. Skeat is at present invalided by beriberi.

A lectureship on Physical Anthropology, in connection with the Human Anatomy Tripos, has been instituted by the University of Cambridge for the teaching of anthropology from the human anatomy standpoint. It is satisfactory to find that the courses of lectures and the practical instruction which were gratuitously carried on by Dr. Haddon for several years have been put on a permanent basis. Professor Macalister is to be congratulated on having thus strengthened his school. Our Fellow, Dr. W. L. H. Duckworth, who has read several papers before the Institute, has been appointed to the lectureship.

From Oxford there is little to record except a steady increase in the ethnological and archaeological collections, and for the future the most hopeful sign is that it is becoming possible to secure a small audience of University men and others for lectures on passages in classical literature which admit of anthropological commentary, and on the earlier stages of civilisation in the eastern Mediterranean. The establishment under a joint committee of the Royal Geographical Society and the University of a School of Geography in Oxford, designed to provide a complete geographical training for all duly qualified students, whether members of the University or not, deserves notice, though not directly anthropological in intention, both because historical geography and anthropogeography have from the first received ample recognition in its programme of work, and because the constitution of the School of Geography itself probably indicates the way in which similar studies may be, with the smallest dislocation of the ancient ways, encouraged in the University.

In the Pitt Rivers Museum Mr. Balfour announces that his accessions have been more numerous than usual, among them the greater part of the Australasian collections of our deceased Fellow, Mr. H. A. Tufnell; and further that he can make a satisfactory report on the use that has been made of the museum collec-

tions by students. Mr. Balfour's long illness, however, must have had an effect on the usefulness of the collections, which owe so much to his energy and skill.

In the Ashmolean Museum, which through the munificence of the late Dr. Fortnum has received large accessions this year, the principal acquisitions of anthropological interest are a small but very valuable series of Chinese and Japanese bronzes in the Fortnum collection; a further instalment of typical specimens from M. Siret's excavations in Spain, which illustrate, for comparison with other Mediterranean series, a number of features in early Iberian civilisation; and a rich series of tomb-groups of the later "Libyan pan-grave" type, from Professor Petrie's excavations of 1899. These last, together with objects from Hierakonpolis and other Egyptian sites, have been presented by the Egypt Exploration Fund, and reinforce the existing collection on a side on which the museum is already becoming peculiarly strong. The museum has also received by deposit the collection of vases and other Greek antiquities formed by Mr. Edmund Oldfield, which includes several choice and unusual representations of familiar Greek myths, particularly of the making of Pandora, of Oedipus and the Sphinx, and of the attack of Heracles upon Busiris; the last-named being the well known vase with representations of negroid types by a Greek artist. It was published long ago by Dr. Helbig in *Annali del' Istituto*, 1865.

Among the contributions to the practical anthropology of the year must be counted the memoir read at the Dover Meeting of the British Association by Mr. Henry, of the Indian Police, on his working of the finger print system for the identification of criminals. Mr. Henry gave a minute account of his experience in the system of measurements for identification invented by Monsieur Bertillon, and finding it unsatisfactory he fell back on the finger prints method of our former president, Mr. Francis Galton. The Bertillon system, according to Mr. Henry, suffers from the radical defect that no two individuals are likely to produce exactly the same results from any given subject, while there is, in addition, an inherent liability to error or variation in the instruments themselves. Thus the formulation of the results from a number of subjects cannot be classified with any approach to the same certainty that Mr. Henry claims for the finger prints. In these he has devised a very ingenious mode of classification by means of which any person, after half an hour's explanation and practice, can unfailingly run to earth any given finger print among a series of many thousands, and when so found its position can be defined by a very simple formula. It is scarcely necessary to say that the police in India have to deal with a thousand individuals where the English police deal with ten or twenty, and Mr. Henry has claimed for his system that it is practical in its working, and that its results are certain, for one cogent reason among others, that the personal equation and the error in instruments are both entirely eliminated. He desires that the most exacting tests should be applied, and with that object he has asked to be allowed to give a demonstration of the system at the Institute during the spring, when we must see that he has the opportunity of doing so before as many experts as we can

get together. He thinks also that his case is strengthened by the fact that the criminal law in India has been so far changed as to admit finger prints as substantive evidence.

In India the application of finger prints is not confined to identification in criminal matters only. In all dealings with the native population, Mr. Henry informs me, the finger print is gradually taking the place of the ordinary form of identification, and it is found that the impression of the finger upon a receipt for a payment is a more effectual bar against attempts at extortion than any signature would be. It is easy to see how, in any community, it might be put to every-day practical use, and during the life-time of a testator would afford evidence of far greater value than a signature alone can furnish.

Another valuable memoir to which I think the attention of the members of the Institute may usefully be called is that by our Fellow, Mr. W. Gowland, on the "Early Metallurgy of Copper, Tin, and Iron in Europe," published by the Society of Antiquaries, in the *Archæologia*. Much has been written on this subject, so fruitful in difficulties, but this is the first time that it has been undertaken by one so well equipped by previous training as Mr. Gowland, whose career in Japan was a happy combination of metallurgy with archæology. One point of great interest that in his judgment is still undecided, is whether iron or bronze was first used by man, though it is probable that many archæologists have made up their minds on the subject; but he dispels altogether the idea that there is any greater difficulty, by the most primitive process, in producing an implement of iron than in making one of copper or bronze, and endorses Dr. Percy's opinion that, metallurgically, the Age of Iron should precede the Bronze Age. I venture to cite this one point among many of great interest in the paper, in order to draw attention to the importance of recording carefully the occurrence of iron rust in an interment of the Stone or Bronze Ages, for, as Mr. Gowland points out, it is unlikely that in ordinary circumstances an iron object of, for example, the later Stone Age, would be at this date anything but a mass of rust.

There is one argument bearing on the general question of the priority of iron or bronze that I do not remember to have seen noticed, and though its application is limited, it may be worth stating. In the bed of the river Thames from Windsor to Chelsea have been found, from time to time, numbers of relics of past ages, ranging from the stone implements of the Drift up to our own time. The materials of which these remains are made are of all kinds, flint and other stones, bronze, iron, wood, and so forth. All these materials, with the single exception of iron, have undergone much the same alterations in the bed of the river as would have occurred had they been buried on land, though there may occasionally be differences in the degree of change. When an iron object, such as a sword, is recovered from the river, it is more often than not found to have retained for the most part a perfectly smooth surface, upon which any ornamental features are often as plainly to be discerned as if recently executed. In this condition I have seen iron swords of pre-Roman, Roman, Saxon, and later times; but among the

hundreds of iron articles from the Thames that I have had through my hands, I have never encountered one piece that could not with certainty, and from extraneous evidence, be attributed to some period more recent than the Bronze Age. The position therefore would seem to be this:—The Thames Valley has been inhabited by man at all times, from the earliest of which we have knowledge, this continued habitation being proved by remains of all the periods with which we are acquainted. We know, from other evidence, that man used iron implements at and after a particular period, and this knowledge is confirmed by the record of the Thames itself, in which relics of iron of all these succeeding periods have been found, the earliest of them fully as well preserved as the most modern. I do not think, therefore, that it is an unfair deduction to draw that if instruments of iron had been used in the Thames Valley in earlier times than is shown by the evidence of other sites (*i.e.*, an earlier than the Bronze Age) we must have encountered them. But as we do not meet with anything of iron that cannot be assigned to post-bronze times, we can only assume that man was unacquainted with the metal. The bed of the Thames is not the only spot that has the quality of preserving iron; other streams have the same peculiarity, if that term can be used, and a review of the probabilities would scarcely seem to be in favour of the theory that iron was known and used before and during the whole length of the Bronze Age, seeing that the many thousand discoveries have furnished no proof of it.

I cannot refrain from calling attention to one useful fact in connection with anthropology that has come prominently to the front during the last few years. It was common enough a generation or more ago, when discoveries of the early ages that we roughly call prehistoric were made in England, or in Northern Europe, to call in the aid of the anthropologist to help in determining the race or affinities of the occupant of the tomb. It was considered that with the primitive relics left by our own rude forefathers the methods of anthropology had an affinity and a proper place. But if it had been suggested to a student of Greek art that our methods could help to unfold and make clear the story of the origin of Hellenic culture, the claim would surely have been received with the haughty assurance that there could be no possible connection between the two subjects. It would have been urged that although Greek art had undergone vicissitudes, so that at certain times or places it stood at a higher level than at others, yet that in its essence it was a heaven-born gift that had descended upon the land of the Greeks, where it had flourished for a very few centuries, and had then passed for ever, owning no human parentage, and, it may almost be said, leaving no progeny. Such was the position taken up by most students of Greek art of the last generation, and it was a position that no one thought of assailing. But within the last twenty years a great and useful change has come over the methods adopted in attacking the culture problems of the Mediterranean area. It is now recognised in all centres of study that the most sublime and exquisite of human productions have their beginnings in the over-mastering need for the beautiful which is as much inborn with the warrior of the age of bronze as with the dilettante of the court of Lorenzo

the Magnificent. It is clearly seen that there *must* be a connecting chain joining in a long line of inevitable continuity the feeble and often laughable efforts at beauty of early Mediterranean man with the loftiest and most splendid artistic achievements that the world has ever seen. It is practically admitted that man's freedom, if not of thought, at any rate of expression, is in practice bounded by the limits of the culture stage of the period and country in which he lives; that while he cannot escape the influence of the preceding stage, he cannot on the other hand do more than make his own little step in the never-ending march of human progress, leaving to the next generation the task of following on. In other words, this is merely the recognition of the fact that the principle of evolution is as much applicable to the essentials of the highest art as it is in the realm of biology. Probably this proposition will scarcely be disputed, but it is one thing to accept an abstract proposition and quite another to apply it in a practical manner. And it is in the practical application of this principle that we have during the last two or three decades made such an advance in the field of archaeology which lies just on the other side of history. It is now seen that the similarity in the methods of burial, or of the objects associated with the dead, at the two ends of the Mediterranean, is scarcely likely to be an accidental coincidence, and that the fact of the discovery being on a classical site has but little if any bearing on its comparative value. The glamour of Homeric tradition has been so far cast aside that we can now, without incurring contempt, compare the relics from a Homeric site with the analogous remains from less historic lands, deal with them in the same way, and apply to them the same terminology. It is to the wonderful discoveries of Dr. Schliemann that we owe this great step; they were so unlike what, according to tradition, they should have been, that a new departure was inevitable, and by degrees their true bearing on the world's history was recognised. Since then many ardent and well-equipped workers have followed this new line of research, Mr. Arthur Evans, Professor Petrie, Mr. J. L. Myres and others, with the result that we have, at Oxford at any rate, a collection where the student can understand the beginnings of art, and realise the value of comparative anthropology.

I must now say a few words to record our sense of the great loss that we have suffered in the death, after a useful and honoured career, of our former President, Sir William Flower. To me he was a kind friend of more than twenty years' standing, and I shall always remember with affection his kindly face.

Sir William Henry Flower, K.C.B., LL.D., D.C.L., D.Sc., F.R.S., Past President and Vice-President of the Anthropological Institute, died on the first of July, 1899, at the age of 68 years. He was the second son of the late Mr. Edward Fordham Flower, of Stratford-on-Avon, and was educated at University College, London, and the Middlesex Hospital for the medical profession, which he entered by becoming a member of the Royal College of Surgeons of England in March, 1854. At that time this country became involved in the Crimean war, to which he proceeded as Assistant Surgeon to the 63rd Foot, and at the conclusion of the war received the Crimean Medal with clasps for Alma, Inkerman, Balaclava, and

Sebastopol, and the Turkish Medal. After his return to England he became a Fellow of the Royal College of Surgeons, and was appointed Assistant Surgeon to Middlesex Hospital and Curator of the Museum of that School, and practised as a surgeon till 1861, when he was appointed Conservator of the Museum of the Royal College of Surgeons, a position he retained till the summer of 1884, when he was made Director of the Natural History Department of the British Museum at South Kensington on the retirement of the late Sir Richard Owen.

Although Sir William Flower has earned for himself a great and well merited reputation by his labours in the field of Zoological Science, and in connection with Zoological Museums, yet on the present occasion it is necessary to confine the limits of this notice of him strictly to his work as an anthropologist.

It was in 1877 that he became a member of this Institute, and began to identify himself prominently with anthropology, chiefly, I believe, through the influence of his old and valued friends, the late Mr. George Busk and Professor Rolleston. About this time he began a revision of the Catalogue of the Human Osteology contained in the Museum of the Royal College of Surgeons, the numerous additions to which, chiefly made by his exertions, having rendered the previous catalogue by Sir Richard Owen practically useless for the purpose it was designed. Although he published in conjunction with Dr. Murie an account of the "Dissection of a Bushwoman" in the *Anthropological Review* as far back as 1867, it was not till 1878 that the first of his more serious contributions to Anthropological Science appeared, a lecture delivered at the Royal Institution on "The Native Races of the Pacific Ocean," and published in the Reports of that Institution for 1878. From that time onwards he was ever more or less engaged advancing knowledge both by pen and word of mouth in the department of anthropology. In 1879 his first paper on "the Osteology and Affinities of the Natives of the Andaman Islands" appeared in our *Journal*, and in the following year an equally important communication on "the Cranial Characters of the Natives of the Fiji Islands." In 1881 we had a paper from him on "a Collection of Monumental Heads and artificially deformed Crania from Mallicollo." The same year he did signal service to the cause of anthropology in this country and to this Institute in particular, in the first place, by the address which he delivered as President of the then Sub-Section Anthropology at the Jubilee Meeting of the British Association held at York, from which resulted a donation from the late Dr. Muirhead of Glasgow of £100 to this Institute, and in the second place, by the publication of the Catalogue, previously referred to, of Human Osteology in the Museum of the Royal College of Surgeons. By his lectures on anthropology, as Hunterian Professor, delivered at the College of Surgeons, and published in the *British Medical Journal* for several years about this period, while he was engaged in classifying and arranging the Anthropological Collection in the Museum, he did a great deal to familiarise members of the medical profession and others with the importance of the comparative anatomy of man, and was the means of bringing many specimens of human osteology to our museums, and not least, led the way to the

acquisition by the Council of the College of the large and magnificent collection of skeletons and skulls of the late Dr. Barnard Davis in 1880. Many of our Fellows will yet remember the Presidential Addresses he delivered at the annual meetings of this Institute in 1884 and 1885, published in our *Journals* for those years. In the first of these he discussed the aims and prospects of anthropology, while the subject of the second was the classification of the varieties of the human species. The period between 1877 and 1885 may be considered that during which his principal contributions to anthropology were made. Although short relatively to the time zoological literature had the benefit of his work, his anthropological contributions produced during it are of the greatest importance, containing as they do not mere descriptions of specimens, but the results also of new and original lines of thought and investigation, and generalisations of already acquired facts, so that they must ever remain as landmarks in the history of anthropology. The chief cause of his active participation in original research in anthropology slackening off at the period mentioned is attributable to the sphere of his labours having been transferred from the College of Surgeons Museum to the more elevated post of Director of the Natural History Museum at South Kensington in the latter part of 1884. Henceforth his work lay more in the administration of that large Institution than in the investigations of the Zoological and Anthropological Laboratory from which he was now removed, much to the loss of our particular branch of science. But although no longer able with his other duties to take as active a part in anthropological research as he would otherwise have done, we are indebted to him for many smaller contributions at our meetings and in our *Journal*, of which that on "The Size of the Teeth as a character of Race" deserves special notice, and not least for his last address delivered in the Sheldonian Theatre at Oxford as President of the Section Anthropology at the Meeting of the British Association in 1894, a most memorable occasion, apart from other considerations, as being the last meeting of the Association in which he and the late Professor the Rt. Hon. Thomas Henry Huxley attended and took part. Lastly, we must not be unmindful of the very valuable work he inaugurated, and was actively engaged in up to the time when ill-health was the cause of his retirement from the Directorship of the Natural History Museum, to advance the study of anthropology by the formation of a collection in that Museum to illustrate the comparative anatomy of man which would appeal to the thousands who during the course of the year visit that great Institution, and which we trust those succeeding him will relax no effort to develop to a still greater extent than declining health permitted him to do.

While the foregoing is a brief epitome of the work in anthropology which Sir William Flower has left behind him for the benefit of ourselves and future generations, no record of it would be complete without some reference of a personal nature to himself.

Dr. Garson, who has kindly furnished me with the facts of Sir William Flower's career, says, "any stranger making his acquaintance for the first

time could not fail to be impressed with his urbane and gentle manners. 'Professor Flower ist ein feiner Mann' was the remark made by the late Professor Braune of Leipzig after his first interview with him. To know him intimately was to love and esteem him and at the same time to hold him in veneration. I can only say for my own part that during the six years we were associated together at the College of Surgeons, I have never heard or known him utter an angry or unkind word, and when he had to find fault it was done in the gentlest and kindest possible manner. He was ever most considerate of others, and the greatest harmony and good feeling ever prevailed from the highest to the lowest of the staff; at the same time he never condescended to undignified familiarities or favouritism, but always upheld the position he had to maintain with dignity and grace." As in his official relations, so also in his home, which was everything to him, and amongst his large circle of friends he was greatly beloved and esteemed. On the other hand I feel sure that he would be the first to claim that no small part of his success was due to the support he ever received from the gifted and equally estimable lady who was for so many years his devoted partner in life, and has now, with a family equally devoted to their father, to mourn his irreparable loss.

The universal esteem in which Sir William Flower was held was shown by the crowds of sorrowing friends and colleagues who attended the funeral service at St. Luke's Church, Chelsea, where he had been a constant attendant and communicant since he took up his residence at South Kensington. The Institute was represented at the service by Mr. Rudler, Dr. Garson, and myself.

The name of Dr. Brinton was known and respected in every spot where anthropology was cared for. His wide knowledge, his industry, and his sympathetic intelligence made him a welcome visitor at all times. Daniel Garrison Brinton was born in 1837 in Chester County, Pennsylvania, and after graduating at Yale and the Jefferson Medical College he entered the army in 1862. While on active service a sunstroke incapacitated him from continuing his career in the army, and he settled in Philadelphia and occupied himself with the literary side of his profession. From his student days, however, he had been much interested in ethnological questions, and was a prolific writer. He established a library and a printing house exclusively for aboriginal American literature, and from this press several valuable works were issued. He filled the office of President of the American Association for the Advancement of Science, a post as honourable in America as the corresponding one is with us. One of Dr. Brinton's latest acts was to present his valuable library to the University of Philadelphia. He died on the 31st July last.

Such is the record, ladies and gentlemen, that I have to lay before you to-day. If I have been tedious I am sorry, but in that case you will be grateful that I have refrained from dealing with many other matters probably equally important that have passed through my mind.

THE OAK AND THE THUNDER-GOD.

By H. MUNRO CHADWICK, M.A., Fellow of Clare College, Cambridge.

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INTRODUCTION.

THE object of this paper is to discuss the connection between the sacred oak and the cult of the thunder-god. For this purpose it is necessary to give an account, first, of the cult of the thunder-god as practised by the chief peoples of Europe, and secondly, of the tree-sanctuaries which are found among the same peoples. After this we may consider the evidence for connecting the sacred oak with the cult of the thunder-god; and in conclusion an attempt will be made to give some explanation of this connection. Since the myths and cults of the Greeks and Romans are comparatively well known, it seemed unnecessary in most cases to do more than give references to easily accessible authorities. On the other hand I have thought it advisable to illustrate at somewhat greater length the less familiar religions of the northern peoples. In the course of the discussion I hope to show that the thunder-god was the chief deity of the early inhabitants of Europe, and further that the temples of late heathen times were, to a great extent, developed out of tree-sanctuaries. I think, therefore, it will be admitted that the subject is one of considerable importance for the study of early European religion.

CHAPTER I.

§ 1. *The Thunder-God in the North.*

H. Petersen in his book *Om Nordboernes Gudedyrkelse og Gudetrol i Hedenold*, has shown that in the North during the last centuries of the heathen age Thor was more worshipped than any other god, and that his cult bears every sign of a remote antiquity. This subject has been so fully and ably discussed by Petersen that it is needless here to do more than briefly recapitulate the main arguments which he has advanced.

They are as follows:—(1) Whenever mention is made of figures of the gods in temples, Thor's figure seems always to take the chief place. In no case is it stated that the central position was occupied by any other god. In several cases Thor's figure is the only one mentioned. (2) In compound personal names *Thór-* is vastly more frequent than the name of any other god. Thus in the *Landnámabók* *Thór-* occurs in 30 men's and 21 women's names, distributed over about 800

and 300 persons respectively. On the other hand *Frey-* occurs only in two men's names and one woman's name (four persons in all), while *Óðin-* does not occur. The significance of these statistics is shown by the fact that persons who bore the name of a god were regarded as being under his special protection.¹ In place-names also *Thór-* is far more frequent than the name of any other god. (3) When Scandinavian gods are mentioned by foreign writers, either Thor is mentioned alone or he is represented as the chief of the gods. (4) Especially significant is the title *Mitgarðs Véurr* "sanctifier of the earth" which is applied to Thor in the *Edda*. Petersen illustrates this by the use of the phrase *þur uiki þisi kuml* (or *þ.u. þasi runar*) "may Thor sanctify these mounds" (or "these letters") which occurs on two monuments in Jutland. The same idea is symbolically expressed by the representation of the hammer on several inscriptions in Jutland and Sweden. That the hammer was used at funerals is made probable by the account of Balder's funeral in *Gylfaginning* 49, where Thor consecrates the pyre with his hammer. A similar usage at weddings may be inferred from the story in *Thrymskviða*. Petersen infers that the hammer was used on many other important occasions, especially at the opening of the assembly. Hammers used as personal adornments have frequently been found. That they were used also in public worship is made probable by Saxo's account (xiii, p. 630) of the large metal hammers (*malleos Iouiales*) which Magnus Nielsen carried away from a temple of Jupiter on one of the Swedish islands (about A.D. 1130). As sanctifier and guardian of the home Thor's figure was carved upon the *öndvegissúlur* "pillars of the high-seat" (the place of honour reserved for the head of the house). The reverence attached to these pillars is shown by several stories dealing with the colonisation of Iceland. The colonists brought their high-seat pillars with them. Thorolfur threw the high-seat pillars of his temple overboard on approaching land and accepted the direction which they took as an indication where to fix his new home.² Hallsteinn, son of Thorolfur, prayed Thor to send him high-seat pillars.³ (5) It is likely also that Thor was regarded as the patron of the assembly. In Iceland, Thursday was the day on which the *Alþingi* (general assembly) was opened. This was also the case with the *Gulaping* in Norway and with most of the district assemblies in the Danish islands. (6) Evidence for the cult of Thor in time of war is given by the account of Styrbjörn's campaign against Eiríkr, king of Sweden, and by Dudo in his account of the Normans.

Such are, according to Petersen, the main features of the cult of Thor. The importance of the cult may be estimated by the fact that it embraces every side of public and private life, whereas the cult of Oðin is concerned chiefly with the military side. Lastly Thor seems to embody the ideal of the national character; he is represented as fearless, impetuous, but benevolent towards men. Oðin on the other hand is distinguished rather by shrewdness and cunning.

¹ Cf. *Eyrbyggja Saga*, c. 7, 11, and the passage from *Grænl. Annáll.* appended to Vigfusson's edition of the *Saga*.

² *Eyrbyggja*, s. 4.

³ *Landnáma Bók*, i, 23.

It is unfortunate that no figures have survived which may be identified with certainty as representations of Thor. Yet there can be little doubt how he was depicted, for the Sagas contain several stories of his appearing to his friends or enemies upon earth.¹ He is represented as a man of large and powerful build, in the prime of life, and having a red beard. The equipment of the god as depicted in the mythological poems is remarkable, especially from the negative side. His weapon is almost always the hammer.² He is never represented as possessing spear, sword, shield, helmet, or coat of mail. Again in travelling he either goes on foot or drives in a carriage drawn by goats. A horse is never ascribed to him. In *Grímnismál* 29, immediately before the enumeration of the horses which the gods ride when they come to do justice under Yggdrasill's Ash, it is stated that Thor has to wade through several streams on his way thither. The horses of Othin, Freyr, Heimdallr and Balder are mentioned also elsewhere. The antiquity of the representation of Thor may be estimated by the absence of the horse and of all the ordinary weapons of war. His equipment indeed resembles that of a hero of the Stone Age rather than of any subsequent period. Both from the shape of the hammer as depicted on Runic stones, etc., and from the fact that the word (O.Norse *hamarr*) also means "rock" and is perhaps related to O.Bulg. *kamy* "stone" and kindred words, it appears not unlikely that Thor's hammer was originally a stone implement.

Human sacrifices in connection with this cult are seldom mentioned. They were known, however, both among the Normans (*Dudo*, i, 1) and in Iceland (*Eyrbyggja*, s. 10³), though in the latter case the victims were probably condemned criminals.⁴ It is somewhat remarkable that in both these cases death seems to have been inflicted by felling with a wooden instrument. Elsewhere sacrifices of horses and oxen⁵ and offerings of bread and meat⁶ are mentioned. Besides the sacrifices there is one other point which deserves mention. In Icelandic temples it seems to have been the custom to keep a sacred fire in the *afhus* (cf. p. 28) which was never allowed to die out. Since the temple described in *Kjalnesingaz*, 2, where this notice occurs, was primarily a Thor-temple, it is likely that this holy fire was connected with the cult of Thor.

It has been shown by Petersen (see above) that the blessings conferred by Thor apply to all departments of human life. His connection with weather and natural phenomena is surprisingly little evidenced in Norwegian-Icelandic literature. This is no doubt due in part to the disuse of the old word for "thunder." In Denmark and Sweden on the other hand, where the words *torden* and *aska* (*toraka*) are preserved, the connection seems to have been more clearly kept. But it is rather as the protector of the human race against trolls (the

¹ Cf. especially *Fornmanna Sögur*, ii, 182.

² *Saxo*, iii, p. 118, provides him with a club.

³ Cf. *Kjalnesingaz*, 2.

⁴ For a similar custom among the Gauls cf. *Cæsar*, B.G., vi, 16.

⁵ *Flateyjarbók*, ii, 184.

⁶ *Olafs s. helga*, 33ff.

spirits of the desert), as the granter of land, the guardian of the laws and customs of civilised life that Thor is best known. In connection with Petersen's supposition that Thor was regarded as the patron of the assembly it is perhaps worth recalling *Grímnismál* 29, where Thor is represented as proceeding to do justice under Yggdrasill's Ash. None of the other gods are mentioned by name in this passage.

In conclusion a few words must be said in regard to Thor's family relationships. He is called the son of Othin, but this can hardly be an original feature, for his cult appears to be much older than that of Othin. His mother is called Fiörgyn¹ or Iörð ("earth"). His wife is Sif,² his sons Móði ("the courageous") and Magni ("the mighty"), his daughter Þrúdr.³ The lateness of the last four names is shown by their allegorical character. The nature of Thor's relationship to the human community is well illustrated by the choice of *Sif* as the name of his wife. Lastly it is worth observing that no royal or noble family seems to have traced its genealogy to Thor.

§ 2. *The Thunder-God of the Continental Germans.*

Among the continental Germans and in England very few traces of this cult have survived. In the "Old Saxon" renunciation formula *Thunær* is mentioned together with *Woden* and *Saxnot*. Again the inscription on the Nordendorf brooch, the meaning of which is not altogether clear, ends with the words *wigi þonar*, which corresponds exactly to the formula employed on certain monumental stones in Jutland (cf. p. 23). The earliest certain evidence for the existence of the cult is the phrase O.H.G. *donares tag*, O.Engl. *þunres dæg* as a translation of Lat. *dies Iouis*.⁴ It is worth observing that among the Franks in the seventh century St. Eligius († 659) found it necessary to forbid the celebration of Thursday festivities.⁵ With this may perhaps be compared the fact that in many parts of Germany Thursday has been the favourite day for weddings down to modern times. The German thunder-god is sometimes mentioned under his Latin name, e.g. in the *Indiculus Superstitionum* and in Bonifacius, *Epist.* 25, where mention is made of a priest who "sacrificed to Iupiter and ate the sacrificial meat."⁶

It is uncertain how far the attributes by which Thor was distinguished in the North were applied to the thunder-god on the continent. In the Frisian

¹ Identical with Goth. *fairguni* "mountain," O.Engl. *firgen* "forest," etc.

² The same word is found in the other Germanic languages (Goth. *siþja*, O.Engl. *sib*, O.Sax. *sibbia*, O.H.G. *sippa*), in the sense of "relationship" (in O.Engl. and O.H.G. also "friendship," "peace"). In Old Norse only the pl. *siðar* "relationship," occurs.

³ Identical with O.Engl. *þrǣ* "strength."

⁴ The names of the days of the week were borrowed probably between the second and fourth centuries.

⁵ Grimm, *Deutsche Mythologie*, iii, 402.

⁶ It is somewhat remarkable that the Germanic Iupiter is not mentioned by the earlier Latin writers. The only god besides Mercurius and Mars to whom Tacitus refers at all frequently is "Hercules," and it has been generally assumed that under this name he meant the thunder-god. This, however, does not seem to me to have been satisfactorily established.

story of the twelve Asegen,¹ if the implement borne by the god is an axe,² it is very likely that it is the thunder-god who is meant. If so this would be valuable evidence for proving the connection of the thunder-god with the laws. Another possible reference to the axe of the thunder-god occurs in the Old English dialogue of Salomon and Saturn (ed. Kemble, p. 148).³

§ 3. *The Keltic Thunder-God.*

Very little is known about the gods of the ancient Kelts. There was, however, a god named *Taran*, who is mentioned by Lucan (I. 446) and whose name appears also in inscriptions as *Tanarus*, *Taranucus*, *Taranucnus*.⁴ Lucan says that he was honoured with human sacrifices. Now the form *Tanarus* corresponds exactly to **punuraz*, the Germanic name for thunder and the thunder-god, while *Taran*- differs therefrom only by metathesis of -n- and -r-. The latter may be identical also with Mod. Welsh *taran* "thunder." It is known that the Kelts had a god "Iupiter"; Cæsar (B.G., vi. 17) states that, like other nations, they regarded him as the ruler of the gods. Since the Latin Iupiter is likewise the thunder-god, there can be little doubt that Taran is the god meant by Cæsar. This conclusion is further confirmed by the dedicatory inscription *I. O. M. Tanaro* found at Chester and dating from A.D. 154.⁵ It is likely enough that the god corresponded to some extent in attributes, as well as in name, to the Germanic thunder-god, for there seems to have been much similarity between the two nations. But the evidence is not sufficient to enable us to arrive at any certain conclusions.

§ 4. *The Baltic Thunder-God.*

The evidence for the cult of the thunder-god amongst the ancient Prussians is much more extensive, but unfortunately it is late and not free from suspicion. Grunau gives the god's name as *Perkuno*⁶ and says that together with the gods Patollo and Potrimpo he was believed to inhabit the sacred oak at Romove. He was supposed to commune with the priests there in thunderstorms. In this way the fundamental laws of the nation were believed to have been imparted by him. In his honour a perpetual fire was kept burning under the oak. The priest who allowed this to die out was condemned to death. According to Grunau (Tr. II, cap. v, § 1) *Perkuno*'s likeness, as depicted on King Widowuto's banner, was that of a middle-aged man with black beard and wrathful expression of countenance;

¹ v. Richthofen, *Friesische Rechtsquellen*, p. 439f.

² The reading is uncertain.

³ There is no direct reference to the god in this passage, but cf. Saxo, xiii, p. 630.

⁴ *Taranucus* in a Dalmatian inscription (C.I.L. 3, 2804); *Taranucnus* in two Rhenish inscriptions (Brambach, C.I.Rh. 1589, 1812); on these names see Much, *Festgabe f. Heinzel*, p. 227f.

⁵ Cf. also *Taranin Iouen* in a scholion to the above passage of Lucan (Usener).

⁶ Identical with Lith. *perkūnas* "thunder," which is still used personally in folk-songs; cf. also Michov in Grynaeus, *Novus Orbis Terrarum ac Insularum Veteribus Incognitarum*, Basel 1537, p. 519, who says of the Samagitti (in East Prussia): *diis suis falsis, præcipue deo lingua eorum appellato Perkuno, id est tonitru, ad focos quosque suos offerbat libamina.*

his head was crowned with flames. Among the holy symbols of the Lithuanians, according to Æneas Sylvius, was a huge iron hammer. From the place-name *Heiligenbeil* it is likely that similar symbols were used among the Prussians.

At the present time it is customary to regard the authorities for the ancient Prussian religion, especially Grunau, with the greatest scepticism. Some writers have even gone so far as to doubt the existence of a god Perkuno. This, however, is certainly unjustifiable.¹ What especially makes for the credibility of Grunau's account in the main, distorted and embellished though it is without doubt, is the fact that there is scarcely one of the religious observances mentioned by him for which a parallel can not be found in some other European people, generally at a very early period of history.² In many cases these foreign customs can not have been known to Grunau. The Northern cult of Thor offers several points of resemblance to Grunau's account of Perkuno. It has been shown above that there is some reason for regarding Thor as the god of the Assembly. This goes far towards confirming the conception of Perkuno as the law-giver. Again the perpetual fire in honour of Perkuno may be compared with the perpetual fire which was kept burning in Thor's temples in Iceland. Lastly the portraiture of Perkuno on the banner strongly resembles the Northern portraiture of Thor. The banner is no doubt fabulous, but the picture may have been drawn from figures of the god such as the one which is stated to have stood in the oak.³

§ 5. *The Slavonic Thunder-God.*

In the treaties mentioned by Nestor (*Chron.* 21, 36, etc.) the Varangians call to witness their god Perun. It is very likely that the Northern god Thor is meant, but he would seem to have been identified with a native god and to have adopted the Slavonic name.⁴ That the cult of the thunder-god was nothing new among the Slavs is clear from Procopius' statement (*Gothic War*, iii, 14) that "they consider one god, the creator of the lightning, to be the only lord of all things."

§ 6. *The Thunder-God amongst the other peoples of Europe.*

It is unnecessary here to discuss the cult of the thunder-god among the ancient Greeks and Romans. That the Greek god Zeus bore this character is

¹ Cf. Zeuss, *Die Deutschen und die Nachbarstämme*, p. 41. It should, moreover, be remembered that the latest of the writers whom I have quoted, Grunau and Michov, wrote within a century of the death of Vitoldus (Vitovt), in whose reign (1392-1430) the Baltic tribes were still mainly heathen. Æneas Sylvius (Pius II, Pope 1458-1461) is practically a contemporary authority.

² I hope that in several cases this parallelism will be made clear in the following pages.

³ It is possible, though hardly likely, that the religion of the Prussians was influenced by that of the North in late heathen times. Gothic influence at a very much earlier period is more probable.

⁴ The name is identical with Russ., Čech. *perun* "thunderbolt," and probably also with Lith. *perkūnas*, though the loss of the *-k-* is still unexplained. Much (*Festgabe f. Heinzel*, p. 212ff) holds that both *perun* and *perkūnas* are loan-words from Germanic, but his theory seems to me to be beset with overwhelming difficulties.

clear from the epithets applied to him such as *τερπικέρανος, ἀργικέρανος ὑψιβρεμέτης, ἐριβρεμέτης, στεροπηγερέτα*. He was also a god of the rain. In this connection it is worth noting that a rain-charm was in time of drought practised by the priest of Zeus on Mount Lykaioi in Arcadia. The ceremony consisted in dipping an oak twig in the sacred stream (cf. Paus. viii, 38, 3). With this may be compared the Roman *aquaticum* which took place at the temple of Jupiter on the Capitol.¹ The connection of the god Jupiter with the thunder and with the phenomena of the weather in general is so well known that it will be sufficient here to refer to Preller, *Römische Mythologie*, p. 190ff.

§ 7. Conclusion.

The foregoing brief summary is enough to show that the cult of the thunder-god was in early times common to most of the Indo-Germanic speaking peoples of Europe. The Greek and Roman thunder-gods, as might reasonably be expected from the identity of their names *Ζεύς* (Voc. *Ζεῦ πάτερ*, Hom.)—*Iū-piter* (*Iuppiter*), seem to have had common features even apart from the influence which was exercised by the one people upon the other in historical times. It may reasonably be supposed also that such was the case with the Keltic *Tanaros* (*Taranos*) and the Germanic *punuraz*, where there is the same identity of name. Lastly, it has been shown that the Prussian cult had several points of resemblance to that of the northern Germans. Here also a similarity of names is not wanting, for *Perkūnas* is closely related to *Fiörgyn*, the name of Thor's mother.

CHAPTER II.

§ 1. The Germanic Tree-Sanctuary.

The Northern temple in late heathen times seems to have been shaped much like a church with an apse-shaped building (*afhús*) at the east end. The *afhús*, which in Iceland seems not to have been open to the rest of the building, was the sanctuary proper and contained the figures of the gods, the altar with the oath-ring and blood-kettle and the perpetual fire. Petersen, however (*op. cit.* kap. 2), believes that there was another form in use, namely the round temple, of which he thinks the round churches, which occur in all Teutonic lands, are a relic. He believes that this is the more original form and that it is a development of the grove-sanctuary. In the more usual type of temple the *afhús* was the original sanctuary, while the long rectangular building (*langhús*) was a later addition and due to the exigencies of the sacrificial feast.²

Temples were known among the other heathen Germanic nations in the early middle ages. In the sixth century a Frankish temple was destroyed by

¹ Tertullian, *Ap.* 40.

² It is possible, of course, that the form of the temple was influenced by that of Christian churches in the British Isles.

Radegund, wife of Chlotar.¹ Gregory of Tours² describes a temple at Cologne which contained figures of the gods and in which sacrificial feasts were held. In Augustine's time the English had temples which were capable of being turned into churches.³ The Frisians and Old Saxons also seem to have had temples, but the notices are not always clear. The word *fanum*, by which these sanctuaries are usually denoted, is also used of the "Irmensul," which was an upright pillar. In other cases again it is clear that the Germanic invaders had appropriated Roman temples to the use of their own gods. The true Germanic temples, except in Iceland, seem to have been usually, if not always, made of wood.

In earlier times the evidence for the existence of Germanic temples is very meagre. The clearest case is Tacitus, *Ann.* i, 51, where it is stated that Germanicus "raised to the ground the temple which they called the temple of Tamfana and which was most frequented by those tribes." In *Germ.* 40 mention is made of the "templum" of Nerthus, but it is not unlikely that the word is loosely used for "sanctuary" and refers to the holy grove mentioned just before.

According to *Germ.* 9 the Germans "deem it to be inconsistent with the majesty of the gods to confine them within walls or to represent them after any similitude of a human face; they dedicate groves and woods and call by the name of gods that invisible thing which they see only with the eye of faith." Sacred groves are mentioned by Tacitus in several other places. According to *Germ.* 39, the Semnones had a wood of immemorial antiquity and holiness; according to *Germ.* 43, the Nahanaruali had a grove of ancient sanctity. The sanctuary of Nerthus (*Germ.* 40) was an island grove. Arminius' forces assemble in a wood sacred to Hercules (*Ann.* ii, 12); Civilis brings his army together in a sacred wood (*Hist.* ii, 14). These sacred groves contained altars (*Ann.* i, 61), and *effigies et signa quaedam* which the priests carried into battle (*Germ.* 7). With the last passage may be compared *Hist.* iv, 22, from which it appears that the *effigies* were figures of wild beasts.

The accounts of later writers fully agree with Tacitus' evidence. Claudian (*Cons. Stil.* i, 288) speaks of "groves grim with ancient religious rites and oaks resembling a barbaric divinity" which he hoped the Roman axes would fell. In the *Translatio S. Alexandri* (*Mon. Germ.* ii, 676) it is stated that the Saxons worshipped trees and streams. Similar evidence is given by the occurrence of place-names such as *Heiligenloh*, *Heiligenforst*, *Heiligenholtz*. In the North place-names ending in *-lund* probably denote the former presence of grove-sanctuaries. There was a holy grove beside the Swedish temple at Upsala, one evergreen tree being regarded as especially sacred. The legendary sanctuary at Glæsisvölr (*Hervarar Saga* 1; *Forn. Sög.* i, 411) was probably connected with a holy grove; *Glæsir* here is, perhaps, identical with *Glæsir*, the name of the tree in *Valhöll* (Othin's dwelling-place).

There is an obvious connection between these sacred groves and the "guardian

¹ *Acta Bened.*, s. i, p. 327.

² *Vita Patrum*, 6.

³ Bede, *Hist. Eccl.*, i, 30.

tree" (*Vårdträd*) which is found standing beside the homestead in many districts of Sweden.¹ Mannhardt describes how formerly every house in the sailors' quarter of Copenhagen possessed an elder tree which was tended with the greatest reverence and regarded as the dwelling-place of the guardian spirit of the house. In the Northern mythology Valhäll has beside it a sacred grove or tree (*Læradr, Glasir*). I have tried elsewhere² to show that the evergreen tree at Upsala was regarded as the *Vårdträd* of the Swedish nation and that the conception of the "world tree," Yggdrasill's Ash, may have arisen from the idea of a *Vårdträd* of the divine community.

We may now return to the discussion of the Northern temple. The "*langhús*" seems to have closely resembled the hall of an ordinary large dwelling house. Like this it contained the "high-seat pillars" which stood beside the seat of the owner of the temple. Indeed there can be little doubt that the *langhús* is copied directly from the hall and that originally it formed no part of the temple proper. Originally it would seem to have been the residence of the priest or chief who presided over the temple and provided the feasts.

Petersen's suggestion that the "*afhús*" (the sanctuary proper) is a development of the holy grove is rendered probable by the following considerations:—(1) The temple appears to have been of comparatively late origin among the Germanic peoples. The passage quoted above from Tacitus (*Germ.* 9) practically amounts to a statement that the Germans had no temples, though in one or two instances temples seem to be actually mentioned by him. (2) The Old English word *hearg, hery*, which is used to translate *sacellum, lupercal, simulacrum, fanum, templum*, is apparently also used for "grove" and is identical with O.H.G. *haruc* which is used to translate *lucus, nemus, fanum, ara*.³ (3) The sacred tree or grove is sometimes found standing beside the temple, as at Upsala. The same phenomenon is found among other European peoples, as in the case of the oak at Stettin destroyed by Bishop Otto (*cf.* p. 33), and the pine destroyed by St. Martin (*cf.* p. 34). In every case the tree seems to have been regarded with greater reverence than the temple. (4) In other European countries certain temples are distinctly stated to have been erected on the site of a holy tree or grove. Such was the case with the temple at Dodona and, according to tradition, with the temple of Jupiter Capitolinus at Rome. From these considerations it seems to me not unlikely that if the *langhús* is a development of the chief's dwelling, the *afhús* may bear some close relationship to the sacred grove or tree (*Vårdträd*) which originally stood beside the dwelling.

In conclusion it is worth mentioning that the sacred groves of the ancient Germans seem to have been used also as places of assembly, the meeting of the Thing being no doubt closely connected with religious festivals. Passages have been quoted above (p. 29) showing that the German armies assembled in sacred groves

¹ Mannhardt, *Baumkultus*, s. 51ff.

² *Cult of Othin*, p. 75ff.

³ With this may be compared O.H.G. *paro*, which is used to translate both *lucus* and *ara*, and is identical with O.Engl. *bearu* "grove."

during their wars with the Romans. It is probable that at the national assemblies in the wood of the Semnones (*Germ.* 39) the business transacted was political as well as sacral. Certainly the great assemblies at the Upsala grove-sanctuary met for more than merely religious purposes. The usual name for the place of assembly in the North is *þingvöllr* which must originally have meant "wood of the assembly," though *völlr* has come to mean "field" in the North.¹ It is in a forest-clearing that the gods meet to decide the fate of Starkadr in *Gautreks Saga* 7. According to a mythological poem (*Grímn.* 30) the gods meet every day to dispense justice under Yggdrasil's Ash.

§ 2. *The Baltic Tree-Sanctuary.*

The only reference of which I know to the existence of temples among the Baltic tribes is a passage in Michov² which describes how Vladislaus extinguished the sacred fire at Vilna and destroyed the *templum et ara* at which the Lithuanians offered their sacrifices. That this was a real temple is made probable by the fact that shortly afterwards he speaks of the *turris* in which the sacred fire was kept.

On the other hand there is no other European people with whom the sacred grove occupies so prominent a position. Æneas Sylvius (*Hist. de Eur.* xxvi) describing the missionary journeys of Jerome of Prag among the Lithuanians, states that he came to a people who worshipped woods dedicated to devils. There was one wood sacred above all others, and in its centre an oak of great age which was especially regarded as the abode of their god. As Jerome continued to cut these trees down, a great crowd of women betook themselves with lamentations to Vitoldus³ complaining that "their sacred grove had been cut down and the house of their god taken away; in it they had been wont to solicit the divine favour and from it they had obtained rain and sunshine; now they did not know where to seek the god whose habitation they had taken away." Michov (*l.c.* p. 518) states that the Lithuanians "deemed woods and groves to be holy and regarded them as the habitations of the gods." In a subsequent passage he relates that the Samagitti considered even the birds and beasts which entered the sacred woods to be holy. They believed that if anyone injured these woods or anything in them, the devils would make his hands or feet to grow crooked. According to Erasmus Stella (*de Borussiae Antiquitatibus*, ii⁴), the Prussians said that the gods dwelt in groves and woods; here sacrifices were to be offered to them; from hence sunshine and rain were to be obtained. "They said that the gods inhabited the finest trees, such as oaks; from these trees enquirers heard replies given to them; therefore they did not cut down trees of this kind but tended them religiously as the houses of their deities. They treated the alder and several other trees in the same way."

¹ The word is identical with O.Engl., O.H.G. *wald* "forest." A similar change of meaning (from "grove" to "meadow") is seen in O.Engl. *lauh*.

² Grynaeus, *Novus Orbis*, etc., Basel, 1537, p. 518f.

³ Prince of Lithuania, see p. 27, footnote.

⁴ Grynaeus, *Novus Orbis*, etc., Basel, 1537, p. 581.

According to Helmold (*Chron. Slav.* i, 1), Germans were, in his day, admitted to all privileges among the Pruzi (Prussians) except the right of access to groves and springs; they thought that these would be polluted by the presence of Christians. A similar statement is made by Stella (*l.c.*) who adds that atonement for the intrusion of strangers could only be made by the sacrifice of a human victim.

Among the Letts a custom is found similar to that connected with the Vårdräd in the North. According to Mannhardt (*Baumkultus*, p. 52ff) it was usual even up to the present century to find beside the homestead a small grove which was regarded as the dwelling-place of the *Mahjas kungs* ("lord of the home") and honoured with small offerings.

Among the Prussians the nearest approach to a temple seems to have been the holy oak at Romove (Rickoiot), the chief sanctuary of the Prussians.¹ This was an evergreen tree with foliage so thick that, according to Grunau, no rain could penetrate it. In the stem stood busts of the three chief gods, and in front of each of these was placed the emblem of his cult, Perkuno's emblem being the perpetual fire. Round the oak were hung fine silk curtains within which no one was allowed to enter except the chief priests; the curtains might, however, be partially withdrawn to enable visitors to see the busts. The priests lived in tents round the oak; according to one authority² the *kirwaito*³ or high-priest lived within the curtain. In this oak Perkuno was believed to commune with the *kirwaito*, who was known as "God's mouth." The other priests and priestesses (*waidlotten*) were old widowers and widows, living in celibacy, and had to make known to the people the commands of the *kirwaito*. In the neighbourhood of the oak the Prussians held their religious, and no doubt also their political, assemblies.

Michov (*l.c.*) states that on the first of October the Samagitti⁴ held a great festival in their sacred woods at which the whole population came together and sacrificed to their gods, especially Perkunus. He states, moreover, that each family had in these woods a hearth at which they burnt their dead, and seats made of cork, on which were set food and drink for the souls of the departed.

§ 3. *The Slavonic Tree-Sanctuary.*

Holy trees and groves are found also among the Slavs. Thietmar of Merseburg (*Mon. Germ.* v, 812) states that Riedegost was completely surrounded by a forest, which was regarded with veneration and never touched by the inhabitants. In a subsequent passage (*l.c.* p. 816) he relates how in the year 1008

¹ Grunau, *Preussische Chronik*, Tr. ii, cap. v, s. 2; iii, cap. i, s. 2; cap. iv, s. 1.

² "Prisca Antiquorum Prutenorum Religio" in *Respublica sive Status Regni Poloniae, etc.*, Leyden, Elzevir, 1642, p. 297ff).

³ This word seems to be identical with Lith. *kriedūtis* on which Schleicher says: "jezt unbekant . . . es muss eine hohe würde bezeichnen."

⁴ From Grynaeus *op. cit.*, p. 524, it is likely that this passage refers, in part at least, to the assemblies at Romove.

Wigbert destroyed a grove called Zutibure,¹ which was honoured by the inhabitants in all respects as a god, and which had never been injured since the beginning of time. In the year 1124 Bishop Otto of Bamberg destroyed three Slavonic temples at Stettin.² He then prepared to cut down an oak which was regarded with great veneration by the inhabitants, as they believed it to be the dwelling place of a deity. Beneath the oak was a spring. The people, though they had allowed him to destroy the temples, besought him earnestly to spare the tree.

The Slavs, however, as has already been mentioned, also possessed temples. One of the temples destroyed by Otto contained a three-headed figure (*Triglaus*). A temple at Riedegost is mentioned by Thietmar in the passage to which reference has been made above. Saxo (xiv, 822ff, 841ff) gives a full account of certain Slavonic temples in Rügen which were destroyed by King Waldemar in the year 1169. One of these temples consisted simply of purple hangings, the roof being supported by pillars. It contained an oaken figure of Rugieuitus with seven faces. Another temple had an outer enclosure of walls and an inner one consisting of hangings, the roof here also being supported by pillars. In the temple stood a wooden figure of Suantouitus with four heads. The priest alone was allowed to enter within the curtains and was not allowed to take breath there. Another temple contained a figure with five heads.

These Slavonic temples bear a curious resemblance to the Prussian tree-sanctuary at Romove. Boetticher³ has made it probable that among the Greeks the earliest figures of the gods were made out of tree-stems, especially from the stem of that tree which was sacred to the god. The statue was in fact a development of the natural tree. If a similar development may be assumed for the Slavonic temple, the latter must come from a form very similar to the Prussian tree-sanctuary. An oaken image in a temple which had curtains for walls may very well come from a living oak surrounded with curtains. Possibly even the multiplicity of heads in the Slavonic idols may be due to the custom, which is found at Romove, of inserting busts in the trunk of the tree. These arguments seem to me to make it probable that the sanctuary at Romove faithfully preserved a type which was once common to the Slavonic and Baltic peoples. The very close relationship subsisting between these peoples is shown by the resemblance between their languages; for, so far as phonology is concerned, there can have been little difference between them at the beginning of the Christian era.

§ 4. *The Keltic Tree-Sanctuary.*

In spite of the paucity of our information concerning the religion of the ancient Kelts, it is quite clear that they had sacred groves and trees. Pliny (*N. H.* xvi, 249) states that the Gauls consider nothing more holy than the mistletoe and the tree on which it grows, provided that this is an oak. He then goes on to

¹ Apparently for *Seetibor* "holy forest"; cf. Russ. *bor* "pine-forest."

² *Mon. Germ. Script.*, xii, 794.

³ *Der Baumkultus der Hellenen u. Römer*, p. 215ff.

describe the ceremonies connected with the cutting of the mistletoe, adding that they never practise any of their religious rites without oak-leaves. In conclusion he proposes an etymology of *Druidae* from Greek *δρῦς* "oak."¹ Lucan (i, 453) says that the Druids inhabit deep groves amid secluded woods. In another passage (iii, 399ff) he describes a grove-sanctuary in the neighbourhood of Marseilles. In Britain also the Druids had sacred groves; Tacitus (*Ann.* xiv, 29) relates how Suetonius Paulinus destroyed the Druids' groves in Anglesey. Though Druidism was put down by the Romans, tree-worship long continued in Gaul. Sulpicius Severus (*Vita S. Martini*, c, 10) states that St. Martin destroyed an ancient temple without meeting with any opposition from the inhabitants, but on his subsequently proceeding to cut down a pine-tree which was consecrated to a devil in the neighbourhood, he at once encountered resistance. It is worth noting that the Gaulish word for temple, *nemeton*, seems to have originally meant "grove."

§ 5. *The Greek and Roman Tree-Sanctuaries.*

For the tree-worship of these nations it will be sufficient to refer to Boetticher (*op. cit.*). Here it need only be observed that in classical times the tree-sanctuary had in most places been either wholly or partially displaced by the temple.

CHAPTER III.

§ 1. *The Association between the Thunder-God and the Oak.*

In the preceding chapter evidence has been given to show that among the Baltic tribes (1) the cult of groves and trees was exceedingly prevalent; (2) the explanation of this cult given by the people themselves was that these groves and trees were the habitations of the gods; (3) the tree most revered was the oak.

Is there any evidence to show that this tree-cult was connected with one god more closely than the rest? In most of the notices no particular god is specified, while in Grunau's account the oak at Romove contains the busts of three gods. Yet there is reason to believe that it is Perkuno, the thunder-god, with whom the reverence for the oak was originally connected. The thunder-god is essentially a god of the weather;² it is rain and sunshine which the Lithuanians hope to obtain from their trees. Again though three gods are mentioned in connection with the oak at Romove, yet it is always Perkuno who appears individually. It is he who speaks with the high-priest in the oak. Further it is stated that Perkuno's emblem was a sacred fire of oak-wood which was kept up perpetually. Lastly Hirt (*Idg. Forschungen* I, 479ff) has made it probable that the word (Lith.) *perkūnas* is

¹ In spite of what has been said to the contrary it seems to me probable that Kelt. *druid* is a derivative of a Kelt. stem *drū* "oak," though there is no evidence for precisely this form in Keltic. The derivation is especially favoured by the Welsh re-formate *derwydd* "druid" from *derw* "oak." Cf. also the *Dru-nemeton* ("oak-grove" ?), where the Galatian council met (Strabo, xii, 5, 1.)

² According to Adam of Bremen, iv, 26, "Thor presides over thunder and lightning, winds and showers, sunshine and the fruits of the earth."

related to Lat. *quercus* (Idg. **perkwus*) "oak." Consequently the word can originally have meant nothing else than "oaken," and must have been an epithet: "the god of" (or "in") "the oak."

Among the ancient Germans also a similar association may be traced. Bonifacius¹ is said to have destroyed at Geismar in Hesse a huge tree which the inhabitants called "Jupiter's oak."² That groves sacred to the thunder-god were known among the ancient English is shown by such place-names as *punres-leah* which must originally have meant "grove of thunder." In the North the association seems to be forgotten, yet an important trace of it is preserved in the word *Fiörgyn*, the name of Thor's mother. This word is closely related to Lith. *Perkūnas*, and like it, in all probability, a derivative of Idg. **perkwus*, "oak."

In regard to the Kelts it has been shown above:—(1) that the cult of the thunder-god seems to have been an important element in their religion; (2) that veneration for groves and trees was prevalent amongst them; (3) that the oak was apparently the tree most revered. The connection between the cult of the thunder-god and the reverence for the oak is shown by Maximus Tyrius, viii, 8:—"The Kelts worship Zeus; the Keltic image of Zeus is a lofty oak."

Among the Romans also the oak was associated with the cult of the thunder-god (*Jupiter*). Several writers³ give lists of trees which were sacred to various gods, and in these it is always the oak which is associated with Jupiter.⁴ Some of these passages may not perhaps be accepted as unimpeachable evidence for genuine Roman tradition, since the suspicion of Greek influence is possible. But there is other evidence of a less questionable character. The "civic crown" of oak-leaves which was given to a soldier who had saved the life of a comrade in war, and which was regarded as one of the highest distinctions which a Roman could gain, seems to have been associated with the cult of Jupiter.⁵ The temple of *Jupiter Feretrius* on the Capitol stood on the site of a sacred oak, to which, according to Livy (I. 10), Romulus brought the *spolia opima* which he had gained by killing the king of Caenina.

That the oak was associated with the cult of the Greek thunder-god Zeus is clear from several passages relating to the oak-sanctuary at Dodona (see below). The association was not peculiar to Dodona, as it was found also at the sanctuary of Zeus on Mount Lykaïos. For the rest it will be sufficient here to refer to a scholion on Aristophanes, *Birds* 480 which states that "the oak is sacred to Zeus."

The association therefore between the oak and the thunder-god is found among the Prussians, Germans, Kelts, Romans and Greeks. In conclusion mention may be made of the Albanian word *perendi*, *perndi* "god." If, as has been suggested,

¹ *Mon. Germ.*, ii, 343.

² If the customary identification of "Hereules" with the thunder-god is correct, Tacitus *silua Herculi sacra* (Ann. ii, 12) may be added.

³ Pliny, *N.H.*, xii, 2 (cf. xvi, 4); Phaedrus, *Fab.* iii, 17.

⁴ Ovid (*Met.* 106) calls the oak "Jupiter's tree."

⁵ Cf. Servius ad *Aen.*, vi, 772.

this word is related to Lith. *perkūnas*, it is likely that the association may be traced also here.

§ 2. *The Sanctuary of the Thunder-God.*

The sanctuary of Zeus at Dodona, near Jannina, was one of the oldest, and in early times perhaps the most important of all the sanctuaries in Greece. In later times Zeus, together with Dione, had a temple at Dodona; but the early authorities mention only an oak or grove. The first reference is in the *Iliad* (xvi, 233ff):—"O lord Zeus of Dodona Pelasgian, who dwellest afar, who rulest over stormy Dodona, around thee dwell the Selloi, thy interpreters, with unwashed feet, sleeping upon the ground." The statement that the priests or Selloi slept on the ground is repeated by Sophocles (*Trach.* 1166f), who mentions also that the tree stood in a grove. Oracles were given by the rustling of the leaves!—whence the tree is represented as endowed with speech—and by the murmuring of a stream which issued forth from beneath the oak.² The stream is called by Pliny (N.H. II, 228) "Jupiter's spring." The pigeons which frequented the grove were regarded as sacred.

There are several points of close resemblance between the Greek sanctuary at Dodona and the Prussian sanctuary at Romove. In both cases the oak is the dwelling-place of the thunder-god.³ The neighbourhood of Dodona is famous for thunderstorms;⁴ Perkuno manifests his presence in the thunder. Oracular responses are given forth by the oak at Dodona; so also by the sacred oaks of the Prussians. The priests sleep on the ground round the oak at Dodona; the Prussian priests live in tents round the oak at Romove. The sanctity attached to the pigeons in the grove at Dodona may be compared with the sanctity attached to the birds and animals which frequented the sacred groves of the Prussians.

These points of resemblance, however, are not confined to the Greek and Prussian sanctuaries. If "the Keltic image of Zeus is a lofty oak" and if, as Lucan states, the Druids lived in groves, sanctuaries like those at Dodona and Romove must have been in existence among the Kelts. Again the following passage from Claudian (*De Bello Getico* 545ff) seems to show that oracular responses were given by the sacred trees of the ancient Germans:—"Moreover we have encouragement from the gods. It is not dreams nor birds (which guide us), but clear speech issuing from the grove." It is also frequently stated, both in the North and among other German tribes, that no harm was allowed to be done to any living being in the neighbourhood of a sanctuary. Again for the spring beneath the oak parallels may be found in northern Europe. The sacred oak which Otto found at Stettin (*cf.* p. 33) had a spring beneath it. There was a spring in

¹ Cf. *Od.*, xiv, 327ff.; *Æsch. Prom.*, 848ff.; *Soph. Trach.*, 170f.; 1164ff.

² Cf. *Servius ad Aen.*, iii, 466.

³ For Dodona this is implied by *Il.*, xvi, 233ff. (quoted above). In a fragment of *Hesiod* also (No. 156 in Rzach's edition) Zeus is represented as living in the oak, but this depends on an emendation (*vaier* or *vaies* for MSS. *vaier*).

⁴ Leke, *Travels in Northern Greece*, 4, 198.

the neighbourhood of the sacred tree at Upsala.¹ It is stated that the nature of this tree was not known; but like the oak at Romove it was evergreen. It is, perhaps, worth observing that the Upsala sanctuary may primarily have been connected with the worship of Thor. At all events Thor's image occupied the chief position in the temple. Lastly the world-tree, Yggdrasill's Ash, is likewise represented as evergreen, and stands over the "spring of Fate."

The results of this discussion may be briefly summarised as follows: There were sanctuaries of the thunder-god among the Greeks and Prussians, probably also among the Kelts, consisting of oaks standing within groves. Perhaps the sacred oaks were originally chosen by preference from one or other of the evergreen kinds.² Round these oaks the priests lived under somewhat primitive conditions of life. Further, there are resemblances in points of detail between the tree-sanctuaries of the Germans and Slavs on the one hand, and those of the Greeks and Prussians on the other, sufficiently striking to justify the suspicion that similar conditions may once have prevailed in the sanctuaries of these nations.

As regards the Germans³ perhaps some objection may reasonably be taken to the assumption in the last statement. There is, however, some indirect evidence to support it. It has been suggested above that in the Northern temple the "langhús" is a development of the dwelling-house, probably that of the priest or chief⁴ of the community, while the "afhús" seems to have taken the place of the sacred grove and to bear some close relationship to the Vårdträd which is found standing beside the ordinary house. Now there are traces that in early times the relative positions of the house and tree were sometimes different. In the hall of Völsung's palace, according to *Völsunga Saga* 2 (*Fornald. Sög.* I, 119), stood the stem of a huge oak, the branches and foliage of which spread out above the roof. A house of this type may obviously be a development of a tree-dwelling similar to the sanctuary at Romove. I do not know of any other example of a house of this kind in the North.⁵ Perhaps, however, the following possibility is worth taking into account. Can the "high-seat pillars" which stood within the hall, both of secular and sacred buildings, and were regarded with peculiar reverence, owe their origin to the former presence of an oak in the same position? It is not stated that they were made of oak-wood, but from their association with the thunder-god it is likely that such was originally the case.⁶ The figure of Thor which was carved upon them may be compared with the Slavonic idols discussed above.

¹ Schol. 134 to Adam of Bremen.

² It is worth noting that the Roman "civic crown" was originally made from the leaves of the evergreen oak (*illex*); cf. Pliny, *N.H.*, xvi, 4.

³ In regard to the Slavs, I have tried to show above (p. 33) that the Slavonic temples in Rügen may come from tree-sanctuaries similar to that at Romove.

⁴ In the North the temporal chief seems to have been also the priest of the community.

⁵ The description of the thalamus of Odysseus (*Od.*, xxiii, 190ff.) may be compared.

⁶ It is perhaps worth suggesting that the *regin-naglar*, which stood in the pillars, may have been pegs used for ignition by friction, perhaps for the re-kindling of the perpetual fire, which, in view of certain customs existing in later times, may have been extinguished once a year. Or again it may have been for the kindling of the "need-fire" which was also perhaps connected

CHAPTER IV.

It has been shown above: (1) That the cult of the thunder-god can be proved to have existed among most of the Indogermanic-speaking nations of Europe. He appears to have been the chief deity of the Greeks, Romans, and Kelts, in pre-historic times probably also of the Germans (at all events in the North). Further if Procopius' statement (*Gothic War*, iii, 14), that in his time (the sixth century) the thunder-god was the only deity worshipped by the Slavs, be compared with the prominent position occupied by Perkuno in the religion of the Prussians, there can be little doubt that the thunder-god was originally the chief, if not the only deity of the Baltic and Slavonic peoples. (2) That among all these nations holy trees and groves are found. The tree most generally venerated seems to have been the oak. (3) That the oak seems to have been associated with the cult of the thunder-god among the Greeks, Romans, Kelts, Germans, and Prussians; further, that oak-sanctuaries of the thunder-god showing striking features of resemblance are found among the Greeks and Prussians, and that there are grounds for suspecting that similar sanctuaries have existed among the Kelts, Germans, and Slavs. It remains now to enquire what can have been the original nature of the association between the thunder-god and the oak.

§ 1. *Mr. Frazer's Theory.*

Mr. Frazer holds that the oak was originally not merely the symbol or habitation of the god, but was itself the object of worship. In *The Golden Bough*, vol. ii, p. 291ff, he writes:—"If then the great god of both Greeks and Romans was represented in some of his oldest shrines under the form of an oak, and if the oak was the principal object of worship of Celts, Germans, and Slavs, we may certainly conclude that this tree was one of the chief, if not the very chief divinity of the Aryans before the dispersion." This passage must be read in connection with vol. i, p. 62:—"In these cases the spirit is viewed as incorporate in the tree; it animates the tree and most suffer and die with it. But according to another, and no doubt later view, the tree is not the body, but merely the abode of the tree-spirit, which can quit the injured tree as men quit a dilapidated house." Also with vol. i, p. 65:—"When a tree comes to be viewed no longer as the body of the tree-spirit, but simply as its dwelling place which it can quit at pleasure, an important advance has been made in religious thought. Animism is passing into polytheism."

Originally therefore the oak was itself the deity; the conception of it as the dwelling-place of the deity is a later development.

Mr. Frazer seems to me to assume too much in his statement (vol. ii, p. 291) that the oak was "not only the sacred tree, but the principal object of worship with the cult of Thor; cf. Adam of Bremen, iv, 26: *si pestis uel fames imminet Thor ydolo libatur*. In later times the sparks for the kindling of the "need-fire" were sometimes obtained by twisting a wooden peg round in an oaken post (cf. Grimm, *Deutsche Mythologie*, i, 502ff).

of both Celts and Slavs." His authorities for this statement are the passages quoted above regarding the tree-cult of the Lithuanians and Prussians,¹ and Pliny's account of the cutting of the mistletoe. But it is clearly stated in many places that the Lithuanians and Prussians regarded their groves and trees as the dwelling-places of the gods. Again Pliny, though he says that "the Druids . . . esteem nothing more holy than the mistletoe and the tree on which it grows, provided only that this is an oak," yet adds the following explanation for this fact:—"they believe that whatever grows on these trees is sent from heaven, and is a sign that the tree has been chosen by the god himself." The god is clearly not inseparable from the tree here. For illustrations of the original form of cult, wherein the tree and the tree-spirit are identical, Mr. Frazer has to go far beyond Europe.²

§ 2. *Objections to the above theory.*

Mr. Frazer's statements would lead one to the conclusion that among the Indogermanic-speaking peoples the development of polytheism from animism, or at all events the development of the thunder-god from the oak, took place subsequently to the "dispersion." Against this supposition, however, there are several serious objections:—

I. Though several of the Indogermanic languages possess words for "god" peculiar to themselves, yet it is practically certain that one word must have been used with this meaning even in the parent language. This is shown by the identity of the Indian, Italic, Keltic, Germanic, and Baltic words for "god" (Sansk. *devas*, Lat. *deus*, *dīvus*, O. Irish *dia*, O. Norse *tívar* (pl.),³ Lith. *dēvas*).

II. No tree-name is ever used for "god," nor is the thunder-god ever denoted by a word which may have been a tree-name. The Baltic-Slavonic designation of the thunder-god seems indeed to be derived from the Indogermanic name of the oak (**perkūns*), but it is a derivative and not the word itself. Hence it would seem to have been originally an epithet, "having something to do with the oak,"⁴ perhaps "living in the oak."

III. The name of the thunder-god in Keltic and Germanic is identical with the word for thunder. It is probable that a similar word must once have existed in Baltic and Slavonic. Otherwise the use of the words *perkūnas*, *perun* for "thunder," "thunderbolt" is difficult to explain. On the other hand the name of the thunder-god in Italic and Greek seem to have originally meant "sky," "daylight" (cf. Sansk. *dyāus* "sky," "day," also personified; Lat. *diēs* "day"). But, further, this word seems to be ultimately connected with Indogerm. **deivos*

¹ I ought here to acknowledge my obligations to Mr. Frazer's book for several of these references.

² I have not the qualifications necessary for entering into a discussion of these examples, but I suspect that some of them might be capable of more than one interpretation.

³ The singular is only used as the proper name of a god: O. Norse, *Týr*; O. H. G., *Zio*; O. Engl., *Ti*, *Tisc*.

⁴ Cf. Gk. *φργωναίος* as an epithet of Zeus (Stephanus Byzantinus under *Δαδώνη*).

"god." This tends to show that among the Indogermanic-speaking peoples the conception of "god" in general was bound up with that of "sky," and that this was more especially the case with the conception of the thunder-god. It must be admitted that it is at all events more natural that the thunder should be conceived of as coming from the sky¹ than as proceeding from an oak or any other tree.

These arguments seem to me to tell greatly against the probability of Mr. Frazer's hypothesis, and in favour of the supposition that the conception of the thunder-god was originally bound up with or developed out of the conception of "sky." Therefore, since it is obvious that the two hypotheses are mutually exclusive, it remains to be seen whether the association of the thunder-god with the oak may be of secondary origin. In the following pages I will endeavour to show that this may be the case.

§ 3. Conclusion.

It has been shown above that in the Greek and Prussian sanctuaries of the thunder-god the priests lived beneath the sacred tree, and that there is some reason for supposing that the same custom may once have prevailed among the Kelts, Germans, and Slavs. One might, perhaps, say "chiefs" for "priests," for in the earliest times it is probable that the two offices were united. Such appears to have always been the case in the North,² while among the Prussians it is noteworthy that Bruteno, the legendary first high-priest, had formerly been king.

The question must now be asked: Is it necessary to suppose that the priests lived beneath the oak because it was sacred? Is it not possible that the oak acquired its sanctity from the fact that the priests lived beneath it?

According to Robertson Smith (*Religion of the Semites*, p. 197) the oldest sanctuaries among the Phœnicians appear to have been natural or artificial caves. He explains this fact by suggesting that in this district caves were the earliest form of human habitation. Now what is likely to have been the earliest form of human habitation in the more northern parts of the continent of Europe? Over a considerable part of the area, which in the earliest historical times was occupied by Germans and Slavs, caves would not often be available. On the other hand it is known that great portions of these countries were at one time almost completely covered with forest. Is it not probable that in primitive times the inhabitants of these regions made their home under the shelter of the larger forest trees? Though this may be granted, it will, perhaps, be said that such a state of society must lie too far back in the past for any reminiscences thereof to have survived in historical times. Yet according to Erasmus Stella³ the Prussians

¹ Cf. the Homeric phrase Ζεύς . . . ἀδίδρι valav (Il. ii, 412), and Adam of Bremen, iv, 26: *Thor praesidet in aere*.

² I hope to deal with this question, so far as the Germanic nations are concerned, on some future occasion.

³ Grynaeus, *op. cit.*, p. 574.

had a tradition that at one time they did not build houses but protected themselves and their children from rain and cold by caves and by the bark of trees. Iordanes (c. 5) says that the Slavs inhabited forests and marshes instead of cities. The dwellings of the Germans in the first century and of the Slavs in the sixth century, as described by Tacitus and Procopius respectively, seem to have been of a somewhat primitive description. But according to Tacitus the Finns in the first century were still without houses. They slept on the ground, and their homes consisted simply of a network of boughs¹ with which they protected their children and old people. Now the customs of a more primitive state of society are often preserved in sacral use when the community in general has reached a higher grade of civilisation. The life of the priests at Dodona is practically identical with that ascribed by Tacitus to the Finns. It may be conjectured therefore that this manner of life was once practised by the ancestors of the Greek race in general.

The sanctity of the oak has yet to be explained. There is reason for believing that the oak was once the commonest, as well as perhaps the largest tree in the forests of northern Europe. As such it would naturally be chosen for the habitation of the primitive community and consequently of all their belongings, their animals, their guardian spirits and their tribal god.² Evergreen trees, such as the oak at Romove or the tree at Upsala, would obviously have the preference. Subsequently, when the art of building had become known, the tree-home was deserted for the purposes of ordinary dwelling, but the sanctity of old associations clung to it, and it continued to be regarded as the home of the tribal god, as Tacitus (Germ. 39) says of the grove of the Semnones: *tanquam inde initia gentis, ibi regnator omnium deus.*

Between the primitive community beneath the oak and the Prussian sanctuary at Romove an intermediate stage may be traced. Herodotus (iv, 23) relates how far to the north of the Seythians, at the foot of lofty mountains, there dwelt a race of holy men called Argippaioi, each under his own tree. This tree was uncovered in summer but in winter was surrounded with an impenetrable covering of white felt. It is interesting to observe that, like the Druids these patriarchs were not only regarded as sacred, but were also appealed to as judges in all cases of dispute. Their homes were inviolable places of asylum and, like the priests of the ancient English, they possessed no weapons of war. Does the curtained tree-dwelling of these patriarchs represent an earlier form of the type seen at Romove? If so it is a natural inference that the curtain was originally no more than a protection for the primitive community against cold and wet.

¹ These dwellings would presumably be somewhat similar to the rough shelters still in use among the dwarf yellow races of Equatorial and Southern Africa.

² To this is probably to be added the fact that in primitive times the acorn seems to have been a common article of food. The tradition was preserved by both Greeks and Romans, cf. Frazer, *op. cit.*, ii, p. 292, footnote, and the references there quoted.

To sum up briefly the results of this discussion, I am of opinion that the thunder-god was supposed to inhabit the oak because this had formerly been the dwelling-place of his worshippers. Originally, no doubt, he was conceived of as dwelling in the sky; but from the very close connection which exists in all primitive communities between the god and his people, it became inevitable that he should be regarded as present in the home of the community. When the community took to building and deserted the tree-home, the sanctity of old associations clung to the latter, and the god was still supposed to dwell there. This is the stage of society represented by the Germans of Tacitus' day and by the Prussians up to their conversion.¹ The protection of the god over the new home was obtained, in the North at all events, by the importation into it of a pillar (probably cut from a holy tree) with the image of the god carved upon it. The third and last stage was reached by the accommodation of the god in a temple built like human habitations, but with certain peculiarities which may be due to reminiscences of the grove-sanctuary. This is the stage found in the North in the last days of heathendom. The change, however, was not complete, for, in certain cases at all events, the sacred tree or grove continued to exist by the side of the more modern temple.

It may be objected to this explanation that it is in no way specially applicable to the cult of the thunder-god. Against this I would answer that the thunder-god was *the* god of the primitive European community. He is the only god whose cult is common to the Indogermanic-speaking peoples of Europe. It is probable that these peoples, like the ancient Semites (*cf.* Robertson Smith, *op. cit.*, p. 39), though they recognised the existence of many supernatural beings, were yet not polytheists in the sense that they worshipped more than one god. According to Procopius the Slavs of the sixth century had only one god, namely, the thunder-god, though they also worshipped *δαίμονια*. The same was probably also the case in the North in early times. The cult of Frö seems originally to have been peculiar to Sweden and, together with that of Niördr, is capable of a special explanation. The worship of Othin was probably introduced at a comparatively late period. No other cult seems ever to have attained much importance in the North. According to Robertson Smith (*loc.*) pantheons, such as the Greek, do not belong to the primitive stages of society. Each community has its god (and perhaps a goddess), its guardian spirits and tribal heroes. In the primitive European community the god seems always to have been the thunder-god.

DISCUSSION.

Mr. W. GOWLAND, after complimenting the author on his extremely interesting paper, called attention to several analogies between the sacredness of trees in early and later times in Europe and in the Far East—in Japan and Korea.

¹ It is noteworthy that the Prussians took their dead to the sacred woods, where, according to Michov, each family had a hearth specially reserved to it for cremation (Grynæus, *op. cit.*, p. 520).

In Japan in most villages there is a sacred tree, the actual tree, however, not being revered *per se*, but as the abode of some god or spirit. It was not regarded as the home of the spirit, for this is always in the sky, but merely as his terrestrial dwelling-place, where he could receive the offerings and reverence



SACRED PINE TREE IN A JAPANESE VILLAGE.

which the inhabitants of the village might wish to offer. The spirit was often held to be the peculiar guardian of the prosperity of the village, even when, as often happened, his nature was malevolent.

The tree was always encircled by a straw rope with pendants of straw or of straw and paper suspended from it resembling a fringe, as shown on p. 43. This is a perfect parallel of the curtain mentioned by the author. The offerings consisted of food and wine, frequently also of round water-worn stones, the latter being piled up around the base of the trunk.

These sacred trees belong essentially to Shintō spirits and the offerings made to them are evidently survivals of an ancient pagan cult. They are sometimes found in the immediate vicinity of a Shintō temple, and occasionally small Shintō shrines are fixed on their trunks. The tree in South and Central Japan is generally the pine (*Pinus Thunbergii*), but sometimes the camphor tree (*Cinnamomum Camphora*), not because there is any special virtue in either tree, but because they are the largest trees in the district.

In Korea he had found the same practice. The sacred tree was the largest in the neighbourhood. Its trunk was encircled by a rope with pendants of straw or of strips of rags. Heaps of water-worn stones offered by the villagers or by passing travellers were piled up at its base.

Groves of trees were not regarded as sacred in Japan, and temples were not built to resemble groves, but every important Shintō temple was erected in a grove, or in front of a clump of trees which were often of gigantic size.

Mr. G. M. ATKINSON said that he would be glad to know if there was any connection or continuity between the Gospel Oaks and the Thunder God, and why the oak leaves are worn on the 29th of May, for the popular explanation is unsatisfactory. The battle of Worcester was fought in September. He thought their structural ornamentation went far to prove the timber origin of the Temples. The ritual of the rag-bush and its connection with Northern Mythology has been explained by Mr. M. J. Walhouse; but it is Yggdrasill's ash-tree that comes in for the greatest share of its attention.

NOTES ON SOME CAVES IN THE TZITZIKAMA OR OUTENIQUA DISTRICT, NEAR KNYSNA, SOUTH AFRICA, AND THE OBJECTS FOUND THEREIN.

BY HENRY D. R. KINGSTON, M.D.

[PRESENTED JANUARY 9TH, 1900. WITH PLATE I.]

THE caves which I had the opportunity of exploring some years ago are to be found on the coast of South Africa, where it runs almost exactly east and west; they lie mid-way between Mossel Bay and Port Elizabeth, about 150 miles from either and 450 miles from Cape Town.

The harbour and village of Knysna, from which they are distant eastwards about 40 miles, stand on the meridian 23° E. of Greenwich. Rob Berg or Cape Seal, a distinct and remarkable promontory, is a point of the locality easily noted on any map. The coast for many miles hereabouts is rocky and abrupt, open or sandy spaces of shore being few and far between. The land falls suddenly and often almost precipitously from "the flats," a tableland or shelf at the foot of the



FIG. 1.—SKETCH-MAP OF PART OF SOUTH AFRICA, BETWEEN MOSSEL BAY AND PORT ELIZABETH: FROM INFORMATION SUPPLIED BY DR. KINGSTON.

Outeniqua Mountains, with a face to the sea of some 300 or 400 feet in height. This is scored or intersected by a number of small rivers—none of them of any great length—which rise in the hills to the north and have cut their way deep into the land, forming narrow and densely wooded kloofs. From this the district gets its native or Hottentot name of Tzitzikama, meaning "plentiful or beautiful waters." It was near the mouth of one of these rivers, called "Groot River" because it is rather bigger than the rest, that the caves were situated.

The mouth of Groot River, like many other points in that district, is a spot of great beauty. The forest, with grand yellow-wood trees and many other sub-tropical species, comes down almost to the water's edge. A bold headland distinguishes its eastern side, clothed with "cripple bush" or scrub on most of its western face, but bare, rocky and rugged on its southern or seaward aspect. It is mid-way between the top, where the rough vegetation of the veldt above fringes over, and the tumbling sea below, that the rock—a quartzite or metamorphic sandstone—is fissured and bored into caves, and perhaps even excavated by the action of the waves in some past time when the levels of the water and the land were different, a condition of which there are many indications along that coast. The largest of these caves is placed so exactly in the extreme angle of this headland that it has two openings, one seawards with a view straight out over the southern ocean, the other looking westward over the sandy bar which always obstructs, and often entirely closes, the river mouth, to the wooded and less striking headland beyond it. In this feature Groot River mouth closely resembles that of Knysna Harbour, the difference being chiefly in the greater size of the latter and the fact that it is deep enough to allow of navigation. To our cave we scramble and climb from the shore below and enter by the roughly rounded window-like opening to the west. The floor is fairly even, but cleft by a great fissure extending upwards from the troubled water below and narrowing as it trends backwards deep into the rock behind, so that it is soon necessary to use candles (and lean sideways) in exploring its inner recesses. These have for us, however, but little interest, for the cave men, in one of whose rude homes we are standing, had evidently a morbid fear of the dark, and even the advantage of greater shelter from the wind and spray did not apparently tempt them into this convenient cleft; at all events, they left in it no remains, nor did they bury their dead there. The floor of this cleft is covered only with fine sharp unworn sand, the *débris* from the gradual disintegration of the rock above, and the droppings from a colony of bats. The floor of the outer cave, some 50 or 60 feet deep and quite 30 feet wide, is on the other hand covered to a very considerable depth with shell *débris* and chips and flakes of the local quartzite, usually, however, not of the yellow rock of the cave walls themselves, but rather of the same grey stone of which the boulders of the shore chiefly consist now. I do not remember to have seen and certainly I have not got a specimen of a flake hand-made from this yellow stone, which apparently did not chip kindly; so that it was usually very easy to distinguish between hand-made flakes and naturally scaled-off fragments of the rock. The *débris* consisted of shells more or less disintegrated and of various kinds. There were in this cave enormous quantities of mussels and great numbers of a large "ear shell," *Haliotis*.

The greater mass, however, of the deep, soft bedding on the floor consisted of white nacreous dust, the result of the entire disintegration of the softer shells of the oyster, which abound immediately below the cave, and were apparently as greatly appreciated by the old cave-dwellers as by modern explorers.

The favourite feeding place, or at any rate the "midden," in this cave seemed to be a ledge which ran out on one side of the chasm towards the larger opening of the cave, for there great heaps of shells were to be found.

I have not much to say about the remains of the "strand loopers" or "shore walkers," as they have been called, from their habit of life, which may have been left in this cave, since the upper levels of its deposits had already been much disturbed by the farmers and squatters in the neighbourhood, who value the "shell guano," as they call it, as a dressing for their lands, and who found it possible to hoist it in sacks to the veldt above, where they were able to bring a waggon sufficiently near to carry it away. It would have required much time and great labour to remove the confused masses above, into which pits had been dug, and lay bare the lower though probably much more interesting layers beneath them.

Our better fortune was to find another cave at no great distance from the first, smaller and at a greater height above the sea, but so difficult of access that it had evidently remained intact since the last *trek* of its migratory inhabitants. Here we found evidence of frequent and successive periods of habitation.

On the surface was a layer of fine white or yellowish sand, which is not water worn but merely the gradual powdering from the roof above.

It is greatly to be regretted that we had not the means carefully and systematically to remove the different layers of material and make a thorough scientific examination of the whole of the contents of the cave, but we arrived, by a series of soundings in various places, at a very fair idea of the nature of the deposits and even of the manner of life of the former inhabitants.

Certain people saw fit, after our amateur excavation was completed, to point out how much better it would have been done had it been done officially; but the fact remains that no one had previously explored the caves at all, and I have just learned from a friend, who has resided within a few miles of the caves all his life, that no one has made any attempt to explore them since.



FIG. 2.—BONE IMPLEMENT FROM THE KNYRNA CAVES.
SCALE, ABOUT $\frac{1}{2}$ NATURAL.

FIG. 3.—SHELL ORNAMENT.
SCALE, $\frac{1}{2}$ NATURAL.

Evidences of human occupation were found in the mass of shell *débris*; the circular blackened area of the primeval hearth; arrow heads and stone axes of the quartzite (Plate I, Nos. 1-8); a hard bone spoon or scoop or hide-scraper (Fig. 2), which bears evidence of long use and careful custody in the polishing of its rough surfaces; and a simple but elegant shell pendant (Fig. 3).

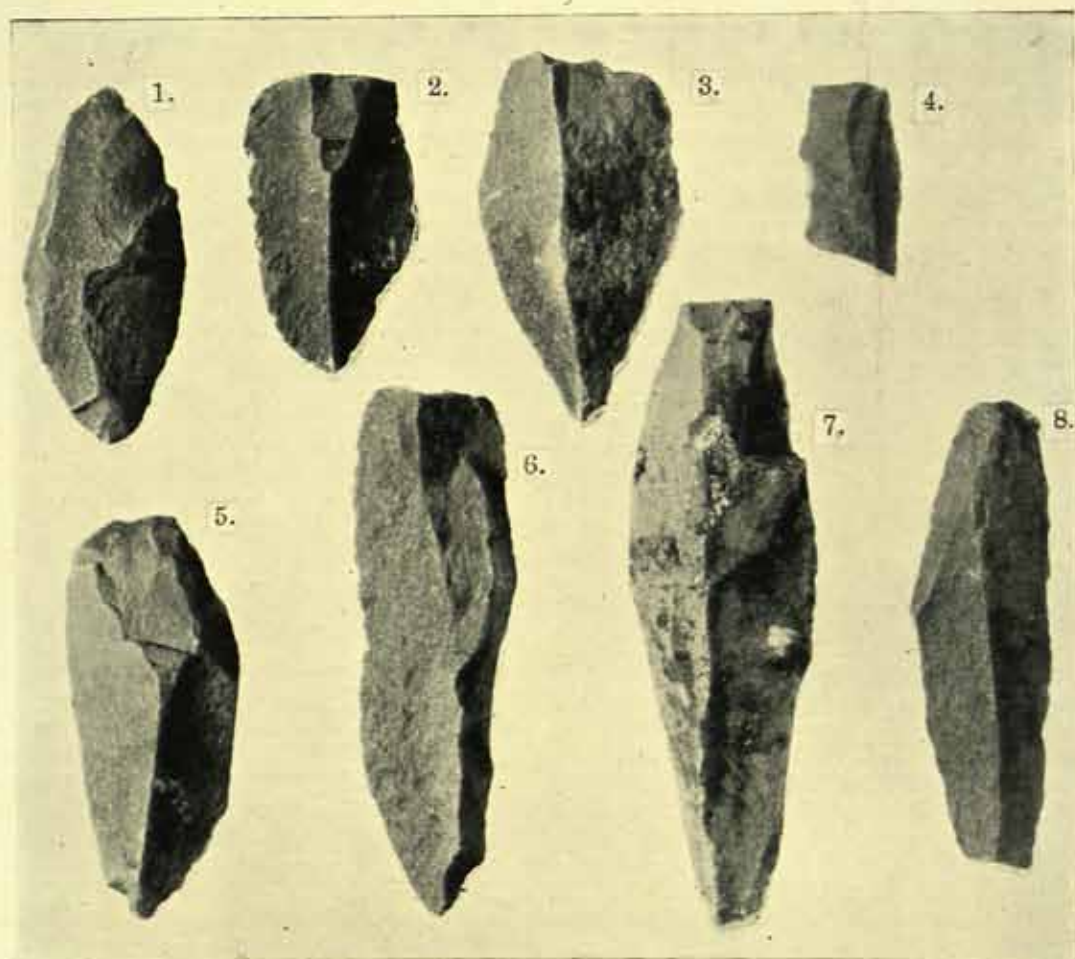
The patches of burnt shell which mark the places of the fires were at different levels, and now and then we came upon a layer of sand, which made one believe that some time had elapsed between one occupation of the cave and another. Deep down we would come upon a mass of ribbon-like "sea-grass," probably a sleeping place, while heavy flat stones, ground and hollowed on their upper surface, and handy flattened "mells" or pounding stones, told of the domestic occupation and the culinary art. Bones of sea birds, of seals, and some of the larger animals probably indicated an occasional change of diet, but there were no weapons large enough to determine whether these were secured by hunting or obtained by accident. Pit-fall traps for buffalo or buck there were in abundance in the neighbouring forest, but whether rightly or not, we were impelled to the opinion that they belonged to a different and later age and a different race—the "Hott'nots," the remains of whose encampments were so abundant on the "flats" above, whose whorl stones, perforated either to weight their digging sticks or for use as clubs, were found there in quantities, and whose rough pottery lay there in fragments, while one well-formed and even elegant jar with a rim has been found already, indicating a much higher stage of civilisation than there was any proof of in the caves. In them we found no whorl stones but only arrow or spear-heads—if, indeed, they were not merely forms of the prehistoric knife—and many "flakes" of varied shape and doubtless varied use.

I have said that the inner recess of the first cave described was not occupied, and this was true in a marked degree of every cave I visited; so much so, that the large caves in and near Rob Berg were so piled with great masses of shell *débris* at their mouth as almost, in some cases, to close the opening. One climbed up the rocks and then over a high ridge of shell—gaining access only by stooping—and passed down into the cave by a steep slope till one stood in a high and roomy chamber. Caves with a double opening were not uncommon on the coast, and from one of these I heard that seven skeletons had been removed.

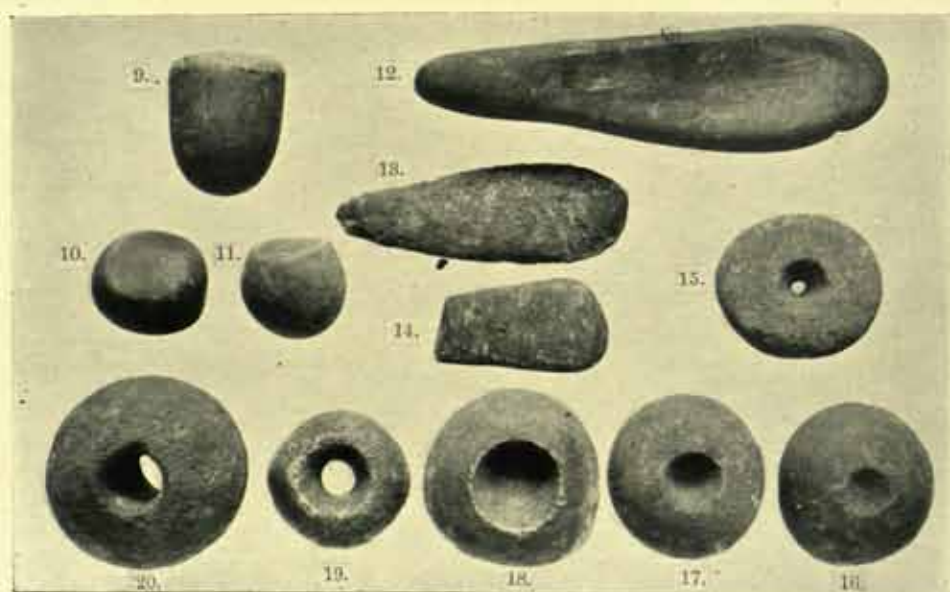
A cave was not, however, the only residence of the "cave dwellers." An overhanging rock, giving the merest shelter, was often found to contain a mass of shells, and that, too, on steep and sloping ground; these, perchance, served as summer quarters. What is now the neck of Rob Berg also, which is marked by a huge and very conspicuous notch, was once a mighty cave. At first two caves back to back, it in time became and for ages remained a double-mouthed cavern and then an arch, the roof of which at last fell in. Great blocks of conglomerate can now be seen littering the space between the walls of rock, and the places from which they have fallen can easily be pointed out.

I regret that I have not been able to visit the caves farther along the coast, westward, towards Knysna Heads and beyond; but many exist there, and skeletons of the same race of men have been found in them.

No doubt the life of these strand loopers was nomadic, their wanderings governed, not by the pasturage available for their flocks—for flocks and herds they had none—but by the food supply accessible for themselves. This food, as we



STONE IMPLEMENTS OF FLAKED QUARTZITE, FROM THE KNYSNA CAVES, SOUTH AFRICA.
SCALE, $\frac{1}{2}$ NATURAL.



STONE IMPLEMENTS FROM THE NEIGHBOURHOOD OF KNYSNA, SOUTH AFRICA.
SCALE, $\frac{1}{2}$ NATURAL.

have seen, consisted mainly of the shell-fish on the rocks, and the amount obtainable within a given area was naturally not large and would obviously be but slowly replaced. The shore is rocky and narrow. The tide falls but little, and the waves are most frequently beating with great force upon the coast. They could at the best but snatch a precarious existence from the jaws of the jealous sea.

Then in time the growing strength of the Hottentot hordes on the hills above would be felt by the prowlers on the lonely shore, for parties would come down and raid the rocky terraces.

So would the fierce primeval tribe gradually grow less, till the skeleton we found crouched to the small and superficial hearth, the bones barely covered by the sand of the crumbling rock, perchance indeed, was that of the lone survivor of his race who had crept there, wounded, to die—the last of the strand loopers.

Description of Plate I.

- Nos. 1-8. *Flaked* implements of local quartzite from the Knysna Caves.
 „ 9-20. *Smoothed* implements of various local stones (not quartzite), found on or near the surface in the neighbourhood of Knysna; figured for contrast with the *flaked* implements from the caves.
 Nos. 9-11. Pounders, formed by use from large round water-worn pebbles.
 „ 12-14. Rubbers or grinders formed by use from longer water-worn pebbles.
 „ 15-20. Series to illustrate stages in the manufacture of the perforated mace-like stones used as weights for digging-sticks.
 No. 16. Showing preliminary chipping of the surface of a natural water-worn pebble, to give purchase to the borer.
 „ 17. Boring has begun.
 „ 18. Boring is carried further.
 „ 19. Boring is carried through the stone on both sides; but the perforation is still hour-glass-shaped, and needs enlargement.
 „ 20. The hole has been enlarged so that its walls are nearly parallel to each other.

NOTES ON THE GALLA OF WALEGA AND THE BERTAT.

BY REGINALD KOETTLITZ, M.D.

[PRESENTED FEBRUARY 13TH, 1900.]

THE route followed by Mr. Herbert Weld Blundell's expedition, of which I was a member, was briefly this:—We crossed the Gulf of Aden, from Aden to Berbera; thence, starting on December 6, 1898, we crossed Somali Land in a south-westerly direction as far as Jig-jigga on the Abyssinian frontier. This portion of our journey we performed with camels. Thence to Harar we travelled with mules. Avoiding the hot desert route we then proceeded along the ranges in the Arusi and Itu countries, and passed lakes Hanamaya and Chercher to the river Hawash, which we crossed, and thence ascended to Addis Abbeba, the capital of King Menelik. From this place I paid a flying visit to the holy mountain of Zikwala, some forty miles to the south.

Leaving Addis Abbeba we proceeded due west through the countries occupied by the Mecha and other Galla tribes; crossed the river Didesa into Walega, which we traversed in a northerly direction. Crossing the river Dabus we entered the country of the Berta or Nuer, where is Abd er Rahman's village called Beni Shongul by previous visitors. Finally we came to Famaka on the Blue Nile; following that river we reached Khartum and ultimately Cairo.¹

WALEGA.

The Galla of Walega are nearly as dark in complexion as the Itu in the east, and much more so than their kinsmen of Abyssinia. They are much less particular about their dress than are the Gallas in the east. The men often only wear a leather breech-cloth, or are content even with a goat-skin phallocrypt with the hair still upon the skin. The women often only wear the leather breech cloth. The girls, as elsewhere in Galla Land, arrange their hair in the shape of a mop, consisting of a mass of corkscrew ringlets. The married women stiffen this mop with wax and honey until it forms a coherent mass of rigid shape, with an edge like a honeycomb rising above it. Sometimes they dye their hair with red clay.

The tokuls outwardly resemble those of the Abyssinians, except that they are more squat and dome-shaped, with a stick protruding from the apex. The internal arrangement, however, is different. A partition made of sticks cuts off the space

¹ For a map of the route, see *Geographical Journal*, March, 1900.

near the door from the main body of the circular hut, thus forming a sort of vestibule. All household work is done within the inner compartment, and there also, along the wall, are the sleeping places, those of the unmarried men and girls being on opposite sides, and screened off by reed screens suspended from the roof and rising about 7 feet above the floor. The walls of these huts are made of grass thatch.

The hoe is the ordinary agricultural implement, but primitive ploughs, drawn by oxen, are occasionally to be seen.

Gold in small quantities is found in Walega, as also in Leka and Sibu, and is washed out of the sand of rivers and brooks. As the Gallas are required by their Abyssinian masters to pay their taxes in gold dust they are obliged to wash for it. I asked a man who had six dollars' worth of gold how long it had taken him to wash for this, and he told me seventeen days!

In these gold districts it is very common to see men carrying a wooden tray-like pan about 2 feet long and 15 to 18 inches wide. This pan is used for gold washing. A small goat-skin bag contains quills in which the gold is kept, and other apparatus. They carry also a neat native-made balance, with weights of pebbles or seeds, fitted into a small basket, by means of which they are able to ascertain fairly accurately the value of their washings. These quills filled with gold dust, or small packets of it, or gold rings of different weights, have a known value, and pass as currency throughout these districts, and there are some markets, notably that of Nago, which go by the name of "gold markets," and are frequented by merchants desirous of exchanging their commodities for gold dust.

THE BERTAS.¹

The Bertas inhabit the country to the north of the Dabus river² as well as a small tract to the south, within the Abyssinian border. They are true negroes, of a dark complexion, with markedly prognathous crania, thick protruding lips and broad flat noses. Most of them are under the average stature, have long arms and flat and spur-heeled feet. They are far from being a pure race, and there is no doubt a good deal of Arab strain among them.

Their chief, Abd ur Rahman, is an Arab, and resides at a village called Beni Shongul by previous visitors, but not known by this name in the country.

Our visit was ill-timed, for twice recently had the country been raided by the Abyssinians, once by Ras Makunen and again by Dejaz Demisi. The tokuls had been levelled, the crops destroyed by fire, and the live stock killed or driven off. Most of the inhabitants who had escaped death or capture had fled to remote parts of the country. Hence we were unable to obtain food, and obliged to lay in a stock before we entered the country.

¹ Berta is the singular, Bertat the plural. Shangalla is an Abyssinian designation applied to the Bertat and all other negro tribes.—ED.

² Dabus seems to be the Galla name of this river. The Bertat call it *Yabus*, the Gamila *Dale*, and others *Dadhesa*, etc.—ED.

We saw, however, enough of the people to convince us that the Bertas are lazy, careless, ignorant, stupid, impudent, fierce and vicious. By the Arab rulers we were treated well.

The dress of these negroes is of the simplest, consisting for the most part, and in the case of females as well as males, of a piece of leather or skin attached to a hip-belt and passed between the legs. Many, however, may be seen to wear the loose trousers, shirt and tope common in the Sudan.

Both sexes wear their hair short or shave the head, and they are much given to gashing their faces and arms, and also the trunk and occasionally even the legs. These gashes are made with a knife, when young, and the scars resulting from this operation stand out above the surface, salt and ashes having been rubbed into the wounds. Usually there are three long gashes in the face, running obliquely downwards and outwards across the cheeks, as also a number of smaller gashes, vertical and slightly curved, on a level with the eyes, towards the ears.

The marks on the arms consist of numerous small wedge-shaped gashes, arranged in rows, or broad arrow-heads, with transverse lines separating the rows, or zigzags, diagonal crosses and other fanciful designs. Gashes of the same kind cover the trunk and the lower extremities, and sometimes they cover nearly the whole body. Women even decorate their breasts with these fanciful designs. Occasionally a patch of small round spots, resembling vaccination or small-pox marks, covers the shoulders and other parts of the body.

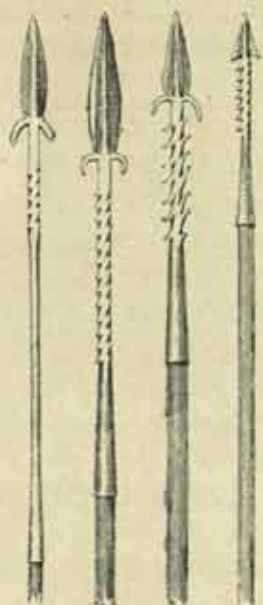


FIG. 1.—BERTA SPEARS.



FIG. 2.—KULBEDAH.

The weapons of these people consist of a spear, sword, throwing stick and dagger. The spear has a long slender iron head, which ends in a comparatively small barbed arrow-headed point, the iron below which is jagged in a regular

pattern all round and as far as the socket by which it is attached to a bamboo shaft. This shaft ends in a ferrule with a chisel-shaped iron point. A spiral iron ring is attached one-third up the shaft, probably with the object of balancing the spear.

Many are also armed with the kulbedah, which resembles a curved double-edged sword with a spur on the inner side of the curve not far from the handle. This is an ugly and dangerous weapon, which is used as a sword and is also said to be thrown. A variety of this weapon, S-shaped, with a second spur, is met with occasionally. The straight iron handle of these swords is padded with leather, and often covered with crocodile or lizard skin.

The throwing stick or club is the weapon seen most frequently. It is curved and flat, and resembles a boomerang. It is made out of wood (sometimes of the root-end of a bamboo), and the patterns vary considerably. The men are very expert in its use and are able to knock down a bird in the water, fifty yards away or more. It does not, however, return to the thrower like the boomerang.

The tokuls are circular and resemble those of the Abyssinians and Gallas, except that the upper ends of the rafter sticks protrude about a foot through the thatch all round the centre pole. The floor is generally formed of a platform supported upon short poles and covered by the projecting roof. The walls are plastered with hard mud resembling mortar. In cases where the tokul does not



FIG. 3.—TOKUL.

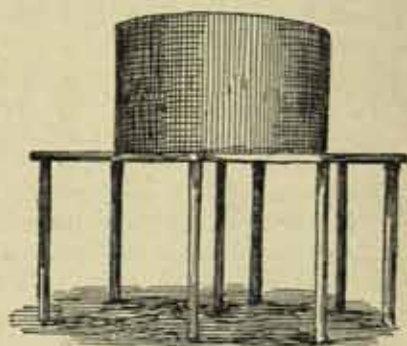


FIG. 4.—GRANARY.

stand upon a platform, the threshold of the door is raised a foot or 18 inches to prevent the hut being flooded during the rains.

The granaries, likewise, are raised upon a platform some 5 or 6 feet above the ground. They resemble cylindrical baskets.

We came past many fields enclosed within thorn hedges, but the only crops we noticed were dhurra and cabbages, all the rest having been destroyed.

They grind their corn on a disc-shaped stone (granite) about 18 inches or 2 feet in diameter, and slightly hollowed out upon the surface. The corn is ground or crushed with a smaller stone which is rubbed up and down, or round and round like a pestle in a mortar.

Large heaps of the empty shells of a big land mollusc were seen outside the tokuls. These had evidently been made use of as food, perhaps in consequence of the scarcity of more palatable food caused by the war.

Gold is washed in the Bertat country. The wooden trays used for the purpose are the same as those used by the Gallas, as are also the balances and quills.

The salt-blocks imported from Abyssinia constitute the favourite currency, more so than Maria Theresa dollars and Egyptian coins.

Donkeys are the only beasts used as pack animals and for riding, for owing to the Serut fly, ponies cannot be kept. The caravans of the merchants, however, are for the most part made up of human beasts of burden, male and female slaves being more numerous here, and cheaper than animals.

The following is the mean of a number of anthropological measurements which I was able to take:—

	Abyssinians.	Gallas.		Bertat.
	Males.	Males.	Females.	Males.
Age	26·7 years	27 years.	41·2 years.	27 years.
Stature	5 feet 5·4 ins.	5 feet 6·6 ins.	5 feet 3·3 ins.	5 feet 5·8 ins.
Length of upper extremity	22·3 ins.	22·33 ins.	21·3 ins.	23·08 ins.
Length between tips of fingers when arms are extended.	5 feet 8·65 ins.	—	—	5 feet 10·7 ins.
Chest girth	34·125 ins.	—	—	—
Head measurements:—				33·93 ins.
Occipito-frontal	7·5 ins.	7·49 ins.	—	7·42 ins.
Occipito-mental	9·6 "	9·60 "	—	9·57 "
Bi-parietal	5·9 "	5·70 "	—	5·54 "

The bi-parietal diameter was measured 2 inches above and 0·77 inch behind the external auditory meatus in the case of the Abyssinians; 1·9 inches above and 0·39 inch behind in the case of the Galla, and 2·18 inches above and 0·77 inch behind in the case of the Bertat.

As a result, I found that the Galla are the tallest; the Bertas exceed in length of arm and fathom stretch; the Abyssinians in girth of chest; the occipito-frontal diameter is greatest among the Abyssinians; the occipito-mental among the Galla; and the bi-parietal among the Abyssinians.

DISCUSSION.

Mr. RAVENSTEIN said the expedition of which the author was a member had performed a most interesting journey, the results of which were most acceptable to geographers and anthropologists. Starting from Zeila, it had successfully traversed the countries of Mohammedan Somal and Gallas, of Christian Abyssinians and heathen Galla and Berta, and had ultimately come down the Blue Nile to Khartum. All these, however, were more or less border-districts, where neighbouring tribes had influenced each other, and primitive or primeval conditions could hardly be studied with advantage. He had long thought

that a well-formed expedition despatched into the heart of Galla-Land, might yield results of the very highest interest. We had learnt no doubt a great deal about the Gallas, but nearly all that information had come to us through missionaries, such as Leon des Avanchers, Massaja or Krapf, who had obtained their information in frontier lands, and whose preconceived notions hardly fitted them to present unbiassed reports on a heathen people. The information to be found in Tutschek's grammar showed these Galla to be simple atheists, whilst the curious bits of information collected by his friend, the Rev. Thomas Wakefield, made me anxious to obtain a fuller and a more precise knowledge of their circumstances. If this Institute were richer, or if one of its wealthy Fellows could be induced to come forward, he thought the money could not be spent better than by despatching an expedition into the country of the Bworani Galls, who seemed, as yet, not to have been contaminated by contact with Christians or Mohammedans. Such an expedition might now safely start from Kismayu, the tribes around which had been won over since the occupation of the coast by England. It would, of course, have to include several members, all of them well prepared for the task they undertook, and some of its members would have to be prepared to stay two or more years in the country, so that they might thoroughly learn the language and win the confidence of the people. An expedition like this, he thought, would furnish scientific results of the highest value, and in every department of science.

THE STONE CIRCLES OF SCOTLAND.

By A. L. LEWIS, F.C.A., Treasurer of the Anthropological Institute.

[PRESENTED MARCH 13TH, 1900.]

FROM the times of Aubrey and Stukeley to the present day the tendency, whether intentional or unconscious, of almost all writers upon stone circles has been to dwell upon their points of resemblance and to minimise the differences which exist between them, and, consequently, to suggest a uniformity of origin, date, and purpose, which is perhaps less probable than has been supposed. Even when differences have been recognised there has not been, so far as I know, any attempt made to classify or localise them; such an attempt I now propose to make. Thirteen years ago I was able, as the result of a visit to the district round Aberdeen, to show (in a paper read before this Institute on the 8th March, 1887, and printed in the *Journal* of August of that year), that most of the circles there had special features, which were not to be found in any other locality, and to which I will presently refer more fully. On this occasion I hope, as the result of a more extensive tour made last autumn, to show that the circles in other parts of Scotland have peculiarities which distinguish them both from the circles round Aberdeen and from those of England and Wales, and which, even in Scotland itself, are confined to special localities.

Stone circles are still much more plentiful in certain parts of Scotland than in the rest of Britain, but many that formerly existed have been destroyed, and for the most part without any satisfactory description of them having been preserved.

Sir James Young Simpson, as long ago as 1861, said, "Almost all the primæval stone circles and cromlechs which existed in the middle and southern districts of Scotland have been cast down and removed. . . . In the beginning of the eighteenth century Sir Robert Sibbald states that near the Kipps cromlech was a circle of stones with a large stone or two in the middle, and, he adds, 'many such may be seen all over the country.' They have all disappeared, and but lately the stones of the Kipps circle have been themselves removed and broken up, to build, apparently, some neighbouring field walls, though there was abundance of stones in the vicinity equally well suited for the purpose."¹

Notwithstanding this lamentable destruction, there are still so many circles left that I have been unable to visit the greater part of them, but I have been able to supplement my own observations from many excellent and evidently trust-

¹ Anniversary address to the Society of Antiquaries of Scotland, January, 1861. (*Proceedings*, vol. iv, p. 48.)

worthy accounts contained in the *Proceedings of the Society of Antiquaries of Scotland*, and other publications, and propose, with the aid of the lantern, to take you on what I may call a "circular" tour round the coast of Scotland, beginning at the extreme south-west.

In the counties of Wigtown, Kirkcudbright, and Dumfries there are still several circles, some of which are more than 100 feet in diameter, and which consist of rather irregular single rings, formed partly of shapeless boulders, and partly of more pillar-like stones, which are seldom more than 5 feet high. Many circles of apparently similar construction are also spoken of in Perthshire, and some in Argyll and Sutherland, but none of these of which I have seen any account can be compared for size or grandeur to the larger English circles, or for regularity and beauty to the smaller circles of Cornwall and Devon.¹

In the island of Arran, in the estuary of the Clyde, close to the road, and about half-way between Brodick and Lamlash, is a circle, which is, I think, very much like those I have been speaking of, but much smaller, being only 21 feet in diameter; it now consists of three granite blocks and some fragments; 63 feet from its circumference is a stone 4 feet high, of coarse conglomerate, in a direction 35° east of south, and, as this stone is just seven radii of the circle from its centre, it may have been specially connected with it. Dr. Bryce dug into this circle in 1861, and found in the centre a small kist, or rather a hole cut in the underlying sandstone, which contained black earth and fragments of bone, while in the stony soil above he found a flint implement and three other flint fragments; he dug on both sides of the outlying stone, but found nothing. Twelve miles away, on the other side of the island, is a more important group, which I was unable to visit, but concerning which Dr. Bryce has given full particulars.² There were in 1860 the remains of eight circles very near to each other, varying in diameter from 7 to 21 yards, five being of sandstone and three of granite, the largest stone being 18 feet high. One of these was a double concentric circle, and four of them contained kists, all pointing a little east of north, with hand-made urns, rude flint arrow-heads, and fragments of bone, with black earth, which, however, was not formed from animal substance. In one kist there was a skull with some long bones, and in another a piece of a bronze pin; in the other circles nothing was found, but, with one exception, it would not be safe to say that no burial had ever existed in them, yet the one exception may be taken to show that burial was not the universal primary object. Dr. Bryce remarks casually, "The granite peaks of the Goatfell group were defined against the deep azure of the north-eastern sky with wondrous distinctness," a circumstance to which I have

¹ (Miss) C. MacLagan, *Hill Forts, Stone Circles, etc., of Scotland*, 1875. *Proc. Soc. Antiq. Scot.*:—Vol. xxix (1895), p. 301, "Stone Circles of the Stewartry of Kirkcudbright," by F. R. Coles; vol. xxxi (1897), p. 281, "On the 'Girdlestanes,' etc., Dumfriesshire," by D. Christison M.D.; p. 90, "Notes on a Stone Circle in Wigtownshire," by F. R. Coles; *Proc. Soc. Antiq. Lond.*, 1885, vol. x, p. 303 (Rev. W. C. Lukis).

² *Proc. Soc. Antiq. Scot.*, vol. iv, p. 499, "An Account of Excavations within the Stone Circles of Arran," by James Bryce, M.A., LL.D., etc.

had occasion to draw your attention in connection with other circles. Goatfell, I may mention, is 2,866 feet above sea level. Dr. Bryce says that the nearest deposits of flint are in Antrim.

There are three fine standing stones at the entrance to Glen Rosa, on the north side of Brodick, and there is another 10 feet high by the side of the road on the way to them. Dr. Bryce also says that several stone circles were known to have existed in other parts of Arran, but that in 1860 there were none remaining but those I have mentioned.

It can hardly be doubted that there have been, even if there are not still, circles in some of the other islands off this coast, but the only two which I have found mentioned were:—One at Kirkabost, Strathaird, Skye, which, it is said, originally consisted of large upright stones, very few of which remained in 1863¹; and one about ten miles from Rothesay (Bute), near Kingarth.² In what the inhabitants of these islands sometimes describe as the adjacent island of Great Britain, there are said to have been, not far from the Crinan canal, cairns, some with kists and some with chambers, but both with circular retaining walls; and on the moors and throughout the hills, several small circles of stones containing burials, but not kists.³ Near Taradin or Tardain, also, I think, in Argyllshire, Mr. Logan, in 1832, reported the existence of a circle of large stones with a covered way leading into it; this was probably the remains of a chambered cairn with a retaining wall,⁴ and not what is understood by a circle.

Proceeding northward, we arrive at the island of Lewis, on the west side of which there is a very interesting collection of circles. The first we come to from Stornoway, after a journey of fourteen miles along a road bordered principally by peat and puddle, with hills in the background, is a concentric double oval. The outer ring now consists of eleven stones, and its diameters are about 50 and 40 feet; the inner ring has only four stones remaining, and its diameters are about 27 and 20 feet. The tallest stone, which forms part of the inner ring, is 6 feet high. This circle is not marked on the one-inch ordnance map, and I have not found any record of excavation being made or anything found in it.

About half a mile farther across the moor may be seen the remains of another oval, of which five stones, of about the same size as those just mentioned, are standing, and three are fallen; both these rings were formerly almost buried in peat, on removing which, in 1858, there were found in this one a small cairn or heap of stones, and four little holes dug in the ground, surrounded by stone borders and paved with smooth round sea-shore pebbles brought from some distance, and in these holes bones and charcoal were found.⁵

¹ *Proc. Soc. Antiq. Scot.*, vol. v, p. 14.

² *Nelson's Tourists' Guide to the River Clyde.*

³ *Journal of the Ethnological Society*, vol. ii, New Series, p. 146, Rev. J. R. Mapleton on "Prehistoric Remains in Neighbourhood of Crinan Canal." Dr. Munro, *Prehistoric Scotland*, 1899, p. 285.

⁴ *Archæologia*, vol. xxv, p. 614.

⁵ *Proc. Soc. Antiq. Scot.*, vol. iii, p. 203, 16th February, 1859, Right Hon. Edward

Two other circles are marked on the ordnance map, from one to two miles south from these, and another on Great Bernera, about four miles west across an inlet of the sea, but I was unable to visit any of these, and have no information about them except a vague statement that they are like the others.

The monuments which I have described so far, with the exception of a few in Argyllshire, are all of one sort, consisting of single or double open rings of stones, both circles and stones generally of moderate size, and usually having burials of some sort in the enclosed area, though, as some have no traces of interment, that would seem not to have been their only purpose. This kind of circle, which extends also into Perthshire, I propose to call the "Western Scottish type."

The chief object of pilgrimage in the island of Lewis is, however, the Callernish circle which is about a mile beyond the two I first mentioned, and plainly visible from them. Various plans and measurements have been given of this circle and its unique appendages, but the best are those by Sir Henry James.¹ The circle consists of thirteen stones, from 12 to 15 feet high, with one in the centre, 17 feet high; they are from 3 to 5 feet in width, but not more than 1 foot thick, and these proportions and their number and proximity to each other produce a rather bewildering effect when close to them. A line of five stones standing and some fallen extends southward from the circle, and lines of four stones from its east and west sides respectively, while from the north-north-east two lines, one of nine and the other of ten stones, form a sort of avenue, from which, however, there is no special entrance into the circle; there are two other stones outside the circle, one on each side of the south line. Inside, occupying all the space between the central stone and the east side of the ring, is a slight tumulus, with three cells, forming a sort of cruciform sepulchre, about 10 feet long and 2 feet deep; it is most probable that this is quite a secondary structure, though it may, notwithstanding its shape, have been made some time before the introduction of Christianity, yet long after the rest of the circle. All these stones were buried in a growth of 5 or 6 feet of peat, which was cleared away in 1857-8, but the protection afforded by it from weathering and lichen is still clearly visible on all the stones. Minute fragments of human bone, apparently burnt, and a black unctuous substance were found in the cruciform tomb when the peat was cleared away from it.² Mr. Callender has said with regard to this circle, "That its position was chosen and laid down from astronomical observation can easily be demonstrated by visiting the spot on a clear night, when it will be found that, by bringing the upper part of the single line of stones extending to the south to bear

Ellice, M.P. *Archæologia Scotica*, vol. i, p. 283 (published 1792), Colin McKenzie on "Antiquities in Lewis."

¹ *Plans and Photographs of Stonehenge and of Turusuchan in the Island of Lewis, etc., etc.*, by Col. Sir Henry James, R.E., F.R.S., etc., Director-General of the Ordnance Survey, 1867, 4to. (Ordnance Survey, price 14s. 6d.) Dr. T. A. Wise published some plans and remarks on this and some other monuments in the *Journal of the British Archæological Association* in 1877 (vol. xxxiii, p. 158), but they abound in errors.

² Sir J. Matheson in the *Proc. Soc. Antiq. Scot.*, 12th April, 1858, vol. iii, p. 111.

upon the top of the large stone in the centre of the circle, the apex of that stone coincides exactly with the pole-star. This is more readily done from the south line, being on sloping ground, so that looking along the line upwards to the higher level of the centre stone is very much the same as taking an observation through the incline of a telescope.¹ The bearing of that line is, according to Sir H. James's plan, about 3° east of north; the northern and longest lines are not, however, quite in the same direction, being about 10° and 15° east of north from the centre; these directions, 10° and 15° east of north, are specially marked in some of the Cornish circles by prominent hilltops.²

According to Sir Henry James's plan, the inside diameters of the circle are 42 feet from north to south, and 36 feet from east to west; the greatest length of the whole structure from north to south is 408 feet, and the extreme width from east to west is 130 feet. From the centre of the circle to the end of the northern line is 294 feet. It does not appear to have occurred to Sir Henry James or to anyone else, but it is nevertheless the fact, that 294 is exactly seven times 42, so that from the centre of the circle to the end of the avenue is exactly seven of the long diameters of the circle. The northern lines of stones are both irregular in their spacing, and the stones in the lines are not opposite to each other. Mr. Callender points out, with regard to the double row, that although "it has the appearance of an avenue it does not seem to have been intended to serve as a mode of access to the circle. If such had been the case the upright stones in front would naturally have been omitted, whereas they stand facing the approach without any deviation from the regular order." Sir Henry James says, "The row of stones on the east side of those which form the shaft of the cross is so arranged as to form an avenue leading up to the grave." This row starts from a stone outside the circle 48° north of east, which is about the midsummer sun rising point, and I am inclined to think that this and the stone at the other end of this line are in their original positions, but that the other stones between these two, which are all rather small, were set up later, and were perhaps removed from the other line, which they would just about suffice to complete. It seems likely, then, that this monument was first constructed in the form of a cross, with a circle at the intersection, and with a single line of stones for each limb, for practices of which the observation of the pole-star and of the sun formed a prominent part; that after a time a tomb was constructed in the interior of the circle, and some of the stones from the northern arm of the cross were removed to make a second line, forming with the first an avenue to the tomb; and that, after a further interval of time, the place was so entirely deserted that no less than 5 feet of peat grew up over the tomb and around the stones. This circle, like many of those in England, has direct reference to the sun and stars and proportional measurements, and belongs, therefore, like them, to a class which I will call "sun and star circles."

¹ H. Callender in the *Proc. Soc. Antiq. Scot.*, 9th March, 1857, vol. ii, p. 380.

² "Stone Circles of Britain," by A. L. Lewis, in *Archæological Journal*, vol. xlix, p. 136 (1892).

The inhabitants are said to have no traditions now about these circles, but Martin, writing about 1700, said the natives told him that the circle last described was a place of worship in the time of heathenism, and that the chief druid or priest stood near the big stone in the centre, from whence he addressed himself to the surrounding people. This could hardly have been learnt from Aubrey, to whom the origin of the "druidic" theory is sometimes attributed, and Sir Henry James points out that "the preservation of such names as 'Clach an Druidean' (the Stone of the Druids) in this island would seem to prove their presence in it at some possibly not very remote period of our history."

Proceeding on our journey round the coast, we arrive at Stenness in Orkney, landing either at Stromness, which is five miles from it to the west, or at Kirkwall, which is ten miles from it to the east. Here, on a wind-swept peninsula, between the Lochs of Harray and Stenness, is the circle known as the Ring of Brogar. The best plans and description of this and the adjacent stones are those of Lieutenant Thomas, R.N., published in *Archæologia* (vol. xxxiv, pp. 88-136, 1851), and I am happy to say that there seems to be little if any alteration in these remains since his survey, made in 1848.

Passing a ditch, 29 feet wide and 6 feet deep, by one of the two causeways which exist, we stand on a circular plateau, 366 feet in diameter, upon which are the remains of a single circle, 340 feet in diameter, of large stones, which, according to Lieutenant Thomas, whose figures I am quoting, were originally sixty in number.¹ Thirteen of these, from 6 to 14 feet high, are still standing, eleven, of similar dimensions, are lying flat, and twelve are represented by stumps and fragments, leaving twenty-four vacant places. Across the Loch of Harray three hills of no great elevation may be seen, between 35° and 65° north of east, covering the midsummer sun rising point, as in many circles in England and as at Callernish also, and answering to the old Egyptian "mount of glory, where the sun rises and is saluted by the powers of the east."²

Looking from the centre of the circle in the direction of the bridge of Brogar, about 30° south of east, we see a large stone by the bridge, called the "Watchstone," which is 18 feet high, and over and beyond it in a direct line another, called the "Barnstone," 15 feet high. A little to the left of this line are two standing stones, which do not seem to have any connection with the others; and a little to the right of it, but beyond the bridge and the "Watchstone," are two standing stones, 15 and 17 feet high, and one fallen, 19 feet long; these and a stump are all that remain of the Ring of Stenness, which Lieutenant Thomas thought originally consisted (if, indeed, it were ever complete) of twelve stones, in a circle 104 feet in diameter, standing on a low mound, encircled by a trench and slight embankment.³ In addition to these three stones there are upon the mound the

¹ Mr. Spence thinks 52 only.

² *Book of the Dead*, see *Proceedings of Society of Biblical Archaeology*, vol. xviii, p. 8, and vol. xix, p. 145. Sir P. Le Page Renouf (President) on the *Book of the Dead*.

³ Lieutenant Thomas considered that this mound, 162 feet in diameter, had been raised about 3 feet above the natural surface and encircled at a distance of 36 feet by a bank 3 feet high.

capstone and two supporting stones of a dolmen, which, I think, may very likely have been made out of what was once a stone forming part of the circle, for their present position does not seem to be either a usual or a likely one as part of the original scheme. Somewhere on the north side of this circle was the celebrated holed stone called the Stone of Odin, which was destroyed at the beginning of the nineteenth century. Lieutenant Thomas was told by someone who had known it in his childhood that it was on the north-west of the circle, but Dr. Henry, writing to the Society of Antiquaries of Scotland, in 1784, when it was still standing, says positively it was to the north-east. It seems probable, therefore, that this circle was quite independent of the larger Ring of Brogar, and had the Odin Stone as an outlyer to the north-east, like the stone called the "Friar's Heel" at Stonehenge and others elsewhere.¹ Leaving the Stenness circles, we go in the direction of the road from Kirkwall to Stromness, close to which we find the "Barnstone" before mentioned, and again verify the fact that a line from it to the "Watchstone" will, if prolonged, strike the centre of the Brogar circle. We then proceed north-easterly to the celebrated chambered tumulus of Maeshowe, and sitting down at the further end of the chamber and looking down the long passage to the outside see the "Barnstone," and find that it is in a direct line down the passage. Mr. Magnus Spence,² who, as I understand, first drew attention to these allignments, has, by personal observation, found that the line from the "Barnstone" to the centre of Maeshowe is that of the midsummer sunrise. This raises the question whether Maeshowe were always a closed tomb, or whether it may not have been a sanctuary of some kind, or a dwelling for the priests.³

and 36 feet wide at the base, the bottom of the apparent trench being, in fact, the natural surface. Mr. Spence thinks there may have been thirteen stones in this circle.

¹ Dr. Henry's communication was not printed at the time, but is quoted by Dr. Hibbert in his paper on "The Tongs of Orkney and Shetland" in vol. iii of *Archæologia Scotica*.

² *Standing Stones and Maeshowe of Stenness*, by Magnus Spence (Gardner, Paisley and London).

³ The three most notable chambered tumuli in Europe are at Gavrinis in Brittany, New Grange in Ireland, and Maeshowe in Orkney, and as I have been in all of them, I may perhaps be allowed briefly to compare them. The gallery and chamber at Gavrinis are of what may be called the ordinary type, upright slabs forming the walls, and horizontal slabs the floor and roof; its chief distinction is the incised markings with which it is so profusely ornamented. The New Grange monument has an irregularly shaped gallery and chamber, the lower part of the walls of which are of upright stones, while the roof is formed by courses of stones projecting inwards till they meet, and there are three recesses, one on each of three sides of the chamber, which, with the entrance gallery on the fourth side, give it a cruciform plan; there are also concentric and other ornamental patterns inscribed on some of the stones. At Maeshowe there is a long gallery opening into a chamber of an almost square shape, which also has three recesses, making with the gallery an apparent cross, but the walls are all of horizontal courses, except a large upright at each corner of the chamber, and while the roof of the chamber is as it were domed by diminishing courses like that of New Grange, the roof of the gallery is made of flat slabs like that at Gavrinis. The recesses are different from those of New Grange, and much more resemble the sleeping places made in the thickness of the walls of some of the beehive houses in the island of Lewis (Lieutenant Harris, R.N., in *Proc. Soc. Antiq. Scot.*, 12th May, 1858, vol. iii, p. 297), except that they would be much more convenient dormitories. A very

According to Mr. Spence, the distances between Maeshowe and the Brogar circle and its outlying stones are carefully proportioned, and the lines between them are all of astronomical import, thus :—

From Maeshowe to the "Barnhouse" stone or "Barnstone" is 42 or 43 chains, in the line of the setting sun ten days before the winter solstice.

From the "Barnhouse" stone to the "Watchstone" is also 42 chains, or according to the 25-inch ordnance map 43 chains, and from the "Watchstone" to the Brogar circle is 63 chains farther in the same line, which is that of the setting sun at the Beltane festival in May, or, looking from the circle to the "Barnstone," that of the rising sun ten days before the winter solstice, when, as Mr. Spence thinks, the winter feast may have begun.

From Maeshowe to the "Watchstone" is also 63 chains, in the line of the equinoctial sun rising and settings.

With regard to these alignments, I can in a very great measure confirm Mr. Spence's statements from my own observation, but the measurements were far too long for me to attempt to verify; we may, however, safely place the Brogar circle, as well as the Callernish monument, in the list of "sun and star circles."

I should mention that there are several tumuli round about the ring of Brogar, in which burials have been found, but that none have been found within the circles. There is also to the north-west of the Ring of Brogar an earthen ring, without standing stones, called the Ring of Bukan.

Leaving Stenness, we go down the east coast of Scotland as far as Inverness, where we find ourselves in the midst of a number of circles of quite a different type from any we have yet seen. Perhaps the greatest assemblage of these was at Clava, on the banks of the Nairn, seven miles from Inverness, and one mile past the battlefield of Culloden. Half a century ago there were here, according to Mr. Cosmo Innes (*Proc. Soc. Antiq. Scot.*, 18th January, 1858, vol. iii, p. 46), eight cairns, each surrounded by a circle of large stones, besides many smaller remains; since that time there have been much building and cultivation, attended by the usual results. On crossing the river from Culloden, the first stone seen is one of considerable size, standing alone in a field, and said to be the last survivor of a circle and cairn. Following the road, we soon find ourselves in the midst of a

similar arrangement of three chambers opening from a central one is described by Captain Thomas R.N. (*Proc. Soc. Antiq. Scot.*, 16th March, 1859, vol. iii, p. 225), as existing in a beehive house in the island of St. Kilda, which was inhabited at least as lately as the summer of 1697. There is no record of any interment having been found in Maeshowe, and there is no reason why it might not have been—at all events in the first place—a beehive dwelling of comparatively palatial dimensions, even if it were (of which there is no evidence) converted into a tomb at a later period. The only ornamentations on the walls are a number of runic inscriptions, and a little figure of a dragon cut by Scandinavians, who knew no more about the origin of the structure than we do. Another difference between New Grange and Maeshowe is that the former was surrounded by a retaining wall of uncemented masonry, outside which is an earthen bank 5 or 6 feet high, outside which, again, was a circle of upright stones, of which the largest remaining is about 7 feet high. Neither at Maeshowe nor at Gavr Inis are there any traces of adjuncts of this kind.

circle, through which it runs, and which is one of a group of three, the principal, if not the only, remains now to be found. This circle is a little over 100 feet in diameter, and consisted of twelve stones, from 4 to 7 feet high, the highest being at the south-west; in the middle of this circle is another, about 50 feet in diameter, of small blocks, 2 or 3 feet high and broad, close together, which formed a retaining wall for a cairn of large loose stones. From this wall, nearly opposite

FIG. 1.

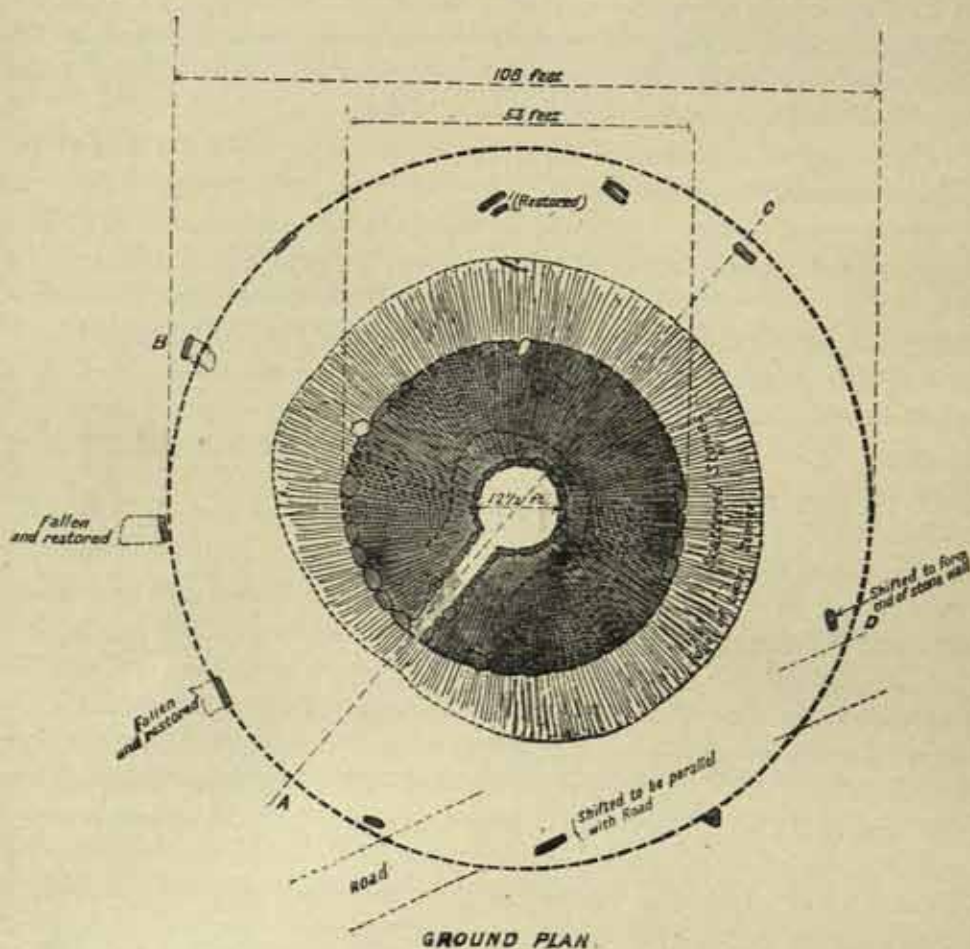
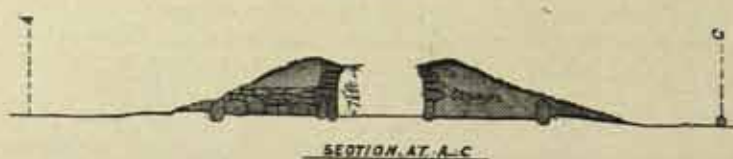


FIG. 2.



Ground-plan (fig. 1) and section (fig. 2) of South-west Cairn and Circle, Clava, lent by the Society of Antiquaries of Scotland from the illustrations to Mr. Fraser's "Descriptive Notes on the Stone Circles of Strathnairn and the Neighbourhood of Inverness."

the highest stone of the outer circle, a passage leads inwards to another close circle 12½ feet in diameter, which is in fact the lower part of a chamber, formerly domed and covered with the loose stones which have fallen or been thrown down in a confused heap, in which the second circle or retaining wall is nearly buried.

These circles are surrounded by a mass of furze, which may conceal many fallen stones and smaller remains, but the interior of the circles is kept clear, and a path cut through the furze leads to another group in a north-easterly direction. Mr. Jolly,¹ writing in 1882, said it consisted of an inner chamber, 20 feet in diameter; a retaining wall for the cairn, 50 feet in diameter; and a surrounding circle, 100 feet in diameter, of eleven stones. Of these latter I found only six, which are from 4 to 8 feet high, the highest being at the south-west, as in the first circle described, but others may be fallen and covered by the furze. Even in 1882 the two inner circles had almost gone, and last year I only found a shapeless heap of stones where they had been. Mr. Fraser,² writing in 1884, found no trace of a passage or of a wall rising from the inner circle, and as the diameter Mr. Jolly assigned to that circle is unusually large for a chamber, the chamber, if there were one, may have been a smaller construction inside it and destroyed long ago.

Following the path still farther to the north-east, we come to the third of these circles, which is almost identical in size and pattern with the first, there being now ten stones in the outer circle, from 3 to 9 feet high, of which the highest is, as in the other cases, at the south-west, nearly opposite the passage leading from the second circle or outer wall of the cairn to the inner circle or chamber, the walls of which latter are still 7 or 8 feet high. In one of these chambers, but whether on or under its floor I do not know, as accounts seem to differ, two small urns with calcined bones were found early in the nineteenth century.

Some of the stones of the outer circles at Clava have fallen and been re-erected, not always exactly in their original position. Cup-markings have been found on one or two stones of each set of circles.

One of the best circles near Inverness is that of Inches, or Leys, two or three miles up the old Edinburgh road. There are the remains of three concentric circles and a passage, which few who have previously seen the Clava group could doubt were also part of a chamber, cairn, and outer circle. All the small stones which formed the cairn and the upper part of the chamber and most of even the larger lower stones of the latter are gone; but the intermediate ring which formed the retaining wall of the cairn and the outer circle are almost complete, and the lower stones of the passage are nearly all there. The diameters of the circles are about a fifth less than those of the Clava group, but the stones of the

¹ On "Cup-marked Stones in the Neighbourhood of Inverness" in *Proc. Soc. Antiq. Scot.*, vol. xvi, p. 303.

² "Descriptive Notes on the Stone Circles of Strathnairn and Neighbourhood of Inverness," by James Fraser, C.E., *Proc. Soc. Antiq. Scot.*, vol. xviii, p. 341.

outer ring are, if anything, a trifle larger, and the largest, as at Clava, is at the south-west, nearly opposite the opening of the passage. A gold torque, which was found either in or near these circles, was exhibited to the Society of Antiquaries of Scotland in 1824.

FIG. 3.

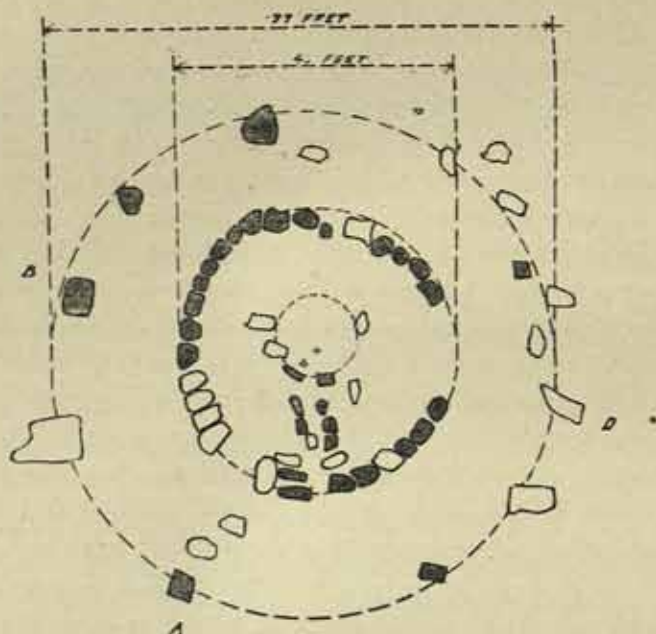
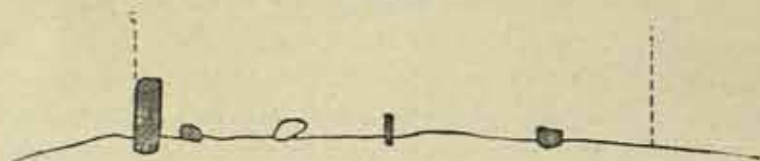


FIG. 4



Ground-plan (fig. 3) and section (fig. 4) of Leys Circle, near Inverness, lent by the Society of Antiquaries of Scotland from the illustrations to Mr. Fraser's "Descriptive Notes on the Stone Circles of Strathnairn and the Neighbourhood of Inverness."

I have a list, compiled from various sources,¹ of more than forty circles round about Inverness, but of a dozen or more of them little or nothing is left to show their original plan, and others are too imperfect to say much about. Nine, at least,

¹ *Proc. Soc. Antig. Scot.* :—Vol. iii, p. 46, Cosmo Innes on "Stone Circles of Clava, etc.," 18th January, 1858; vol. xvi, p. 314, W. Jolly on "Stones with Cup-markings near Inverness"; vol. xvi, p. 477, Angus J. Beaton on "Antiquities of Black Isle, Ross-shire"; vol. xviii, p. 328, J. Fraser, M.L.C.E., "Descriptive Notes on the Stone Circles of Strathnairn and Neighbourhood of Inverness."

Archæologia Scotica :—Vol. iii, p. 211, G. Anderson on "Circles and Cairns near Inverness"; Rev. C. L. Smith, M.A., "Excursions through the Highlands and Isles of Scotland in 1835 and 1836." M. Pocard Kerviler in *Journal de la Société Polymathique*, 1869.

See list of circles at end of paper.

were evidently of the construction I have described, and at least as many others show traces of three concentric rings but have no certain indication of any passages. It is clear that we have in the district of which Inverness is the centre a number of circles of a special kind, consisting of an outer ring of pillar stones encircling a cairn with an interior chamber and passage leading to it, or it may have been in some cases a small chamber or kist without a passage, and this kind of circle I propose to call the Inverness type. In these circles the largest pillar stone is usually at or about the south-west, and the entrance to the passage, when there is one, is between south and south-west.

Although these circles were most numerous in the neighbourhood of Inverness, there seem to have been two or three in Caithness, where, however, the majority of burials appear not to have been in circles at all.¹ One is mentioned in the Orkneys, but as it was covered by a lake, it may very likely have been the remains of a crannoge.² Another is described as standing at the east end of Quendale Bay, Shetland,³ but this has not, and perhaps never had, an outer ring of pillar stones, and the same may apparently be said of some already mentioned in Argyllshire; these may therefore be only remains of chambered cairns without surrounding circles. There may perhaps be one or two in Perthshire, but all that are situated outside the Inverness district are more or less accessible from it by water. A circle at Gunnerkeld in Westmorland is the only one in England that bears any resemblance to the Inverness type⁴ and even this presents many differences.









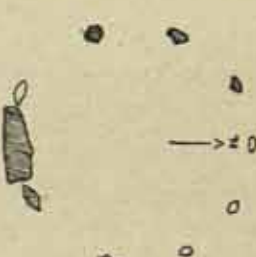

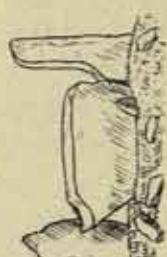
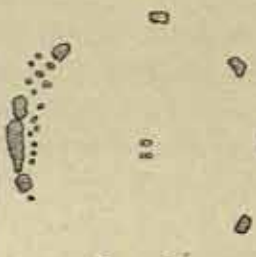
Continuing our journey round the coast, we arrive at Aberdeen, where, as I mentioned at the commencement of this paper, we are in the midst of a group of circles of yet another description, which I propose to call the Aberdeen type. They resemble the Inverness circles in having an outer ring of pillar stones encircling in most cases—not a large cairn with a built-up chamber but a kist, covered by a low mound, which is frequently supported by a retaining wall of small stones forming an inner circle, but of course without any passage leading to the interior. The distinguishing feature of the Aberdeen type is, however, what is locally called the "altar-stone," although it was not and never could have been an altar, a large stone standing on its longest edge between the two tallest pillars of the outer circle, filling up the whole space between them, and frequently kept in position by two small stones in front and two behind it. It is generally at the south of the outer circle, or slightly east of south, the highest stones being next to it, and the others gradually diminishing in size to the north. There are circles of other kinds in the country round Aberdeen—as for instance at Fordoun,

¹ *Proc. Soc. Antiq. Scot.*, vol. vii, p. 293, Rhind on "Yarhouse, Wick, etc."

² *Proc. Soc. Antiq. Scot.*, vol. xvi, p. 477, A. J. Beaton, "Antiquities of Black Isle Ross-shire," 14 June, 1882.

³ *Ibid.*, vol. xxi, p. 283, Rev. C. L. Acland, M.A., 9 May, 1887.

⁴ *Journal of British Archaeological Association*, C. W. Dymond, C.E., 5th March, 1879. *Journ. Anthropol. Inst.*, vol. xv, p. 165, A. L. Lewis, 28th April, 1885.

 STRICHEN. (Rev. J. Peter.)	 MIDMAR. (Col. Forbes Leslie.)	 ARDLAIR. (Col. Forbes Leslie.)	 SINHINNY. (Col. Forbes Leslie.)
 LOUDON WOOD. (Rev. J. Peter.)	 "KIRK O' TOUCH." (C. MacLagan.)	 "KIRK O' KEIG." (C. MacLagan.)	 AUQUOITHIES. (C. MacLagan.) INVERURY
 AIKEY BRAE. (Rev. J. Peter.)	 AUCHORTHIES. (A. L. Lewis.) ABERDEEN.	 DYCE. (A. L. Leslie.) SKETCHES AND PLANS OF "ALTAR STONES" IN SCOTCH CIRCLES (ABERDEEN DISTRICT.)	
 OLD RAYNE. (C. MacLagan.)			

and at Broomend of Crichtie—but all inquiries that I have made have failed to discover a circle of this type anywhere except in this district.

I have a list of more than thirty circles in the Aberdeen district, but I think there may have been many more.¹ Twenty-six have this peculiar "altar-stone," and some of the others may have had it, but are too imperfect to enable anyone to say whether it formerly existed in them or not. I think, therefore, I may now say that I have fully established the proposition with which I began this paper, that the Scotch circles may be divided into different types, each of which has its centre in a different locality, namely:—1. The Western Scottish type, consisting of a rather irregular single ring or sometimes of two concentric rings. 2. The Inverness type, consisting of a more regular ring of better-shaped stones, surrounding a tumulus with a retaining wall, containing a built-up chamber and passage leading to it, or a kist without a passage. 3. The Aberdeen type, consisting of a similar ring with the addition of a so-called "altar-stone," and usually having traces of a tumulus and kist in the middle. There is much reason to believe that most of the circles of these three types were used for burial, if, indeed, that were not their chief purpose, but, as there is evidence that all have not been so used, it cannot have been their only purpose; and, with regard to the Aberdeen circles in particular, we have the statement of Dr. Garden, made to Aubrey so long ago as 1692, that "the general tradition throughout this kingdom concerning this kind of monuments is that they were places of worship and sacrifice in heathen times."² In addition to these three types of circles, there are what I have ventured to call the sun and star circles, with their alignments of stones, and apparently proportioned measurements; and other classes may perhaps yet be distinguished by a closer examination in different parts of the country.

This division of the circles into classes and localities is, it appears to me, an important point for consideration in any attempt to unravel the early history of the Scottish people. From Inverness to Aberdeen is only about 70 miles in a straight line, and the distance between the points nearest to one another of the districts of which they are the centres is much less, but there must either have been a separate tribal origin or a considerable cessation of intercourse between two branches of the same tribe for two such different types of circles to

¹ Colonel Forbes Leslie, *Early Races of Scotland. Archaeologia Scotica*, vol. ii, p. 324, J. Skene, "Account of Hill-Fort of Barmekyne, etc." (1822).

Proc. Soc. Antiq. Scot.:—Vol. i, p. 141 (14th February, 1853), John Stuart on "Various Stone Circles in Aberdeenshire"; vol. xiv, p. 295 (1879), Dr. Angus Smith on "Stone Circles in Durris, Kincardineshire"; vol. v, p. 130 (1863), A. Thomson on "Four Circles of Standing Stones in Parish of Banchory Devenick"; vol. xviii, p. 319 (1884), C. E. Dalrymple on "Stone Circle at Crichtie"; vol. xix, p. 370 (1885), Rev. J. Peter on "Stone Circles in Parish of Old Deer"; vol. ii, p. 466 (1857), A. Jervise on "Sculptured Stone monuments, etc., at Fordoun, Mearns, etc." *Archæologia*, vol. xxii, p. 198 (1827), J. Logan on "Several Circles of Stones in Scotland, etc."; p. 410 (Appendix, 1822), J. Logan on "Circles at Dyce and Leuchars." *Proc. Soc. Antiq. Lond.*, May, 1885, vol. x, p. 305 (Rev. W. C. Lukis).

² *Archæologia*, vol. i, p. 312.

have been developed in localities so near to one another. The apparent existence of some specimens of the Inverness type outside its immediate district, but in communication with it by water, suggests also that the greater facilities offered by the inland lakes for the use of slight and fragile vessels may have developed a seafaring capacity among the early men round Inverness, which was not so readily acquired in the rougher and more open seas on the Aberdeen coast.

So far as Dr. Beddoe's statistics go, the Inverness people of a generation ago seemed to be somewhat taller and heavier than those of Aberdeen, but he does not appear to draw any particular distinction between them.¹ He says, however (p. 540), "I believe it would accord with what has been observed in other mountainous and sequestered regions, such as Switzerland and Styria, if there were considerable variations in average stature between one neighbouring valley or district and another, and from general observation I think such is the case, and I regret I have been unable to procure returns from some other portions of the Highlands which might have brought out the fact."

I should like in conclusion to say a few words on the possibility of a classification of the English circles. Perhaps the materials for such a classification do not exist. The number of circles in England is much smaller, and the area over which they are scattered is much larger, than in Scotland. It is only in Cumberland, Devonshire, and Cornwall that there can be said to be groups of them, and nearly every circle in those groups has an individuality of its own. They vary greatly in diameter and in the sizes of the stones composing them, but they are all single rings, except the Gunnerkeld circle, though some have one or more stones inside them. The Cumberland circles have a more clearly defined entrance than those of southern England. Avebury and Arborlowe may be said to form a separate type, since they are shut in by high earthen embankments, and had in the middle a "cove," consisting of three stones, forming three sides of a square, with an open side to the north-east; Mayburgh, in Westmorland, may also have belonged to this type, but there is only one stone left inside the bank, so we cannot tell. Apparent references to the sun and stars are more numerous in England than in Scotland, where, however, more may perhaps yet be found if they are looked for.

Finally, we have in England Stonehenge, which may be said to form a class by itself, for there is nothing quite like it anywhere else. Its concentric double rings and double horse-shoes, and its so-called "altar-stone," recall the construction of the Inverness and Aberdeen types, though with great differences of form and still greater of purpose; and its north-easterly bearing and outlying stones connect it with, and indeed give the key to, other "sun and star" circles, while the shaping of the stones, and the tenons and mortices which hold the transverse stones in position, and the transverse stones themselves, give it a special character and one perhaps more modern than belongs to any of the other circles. It seems, indeed,

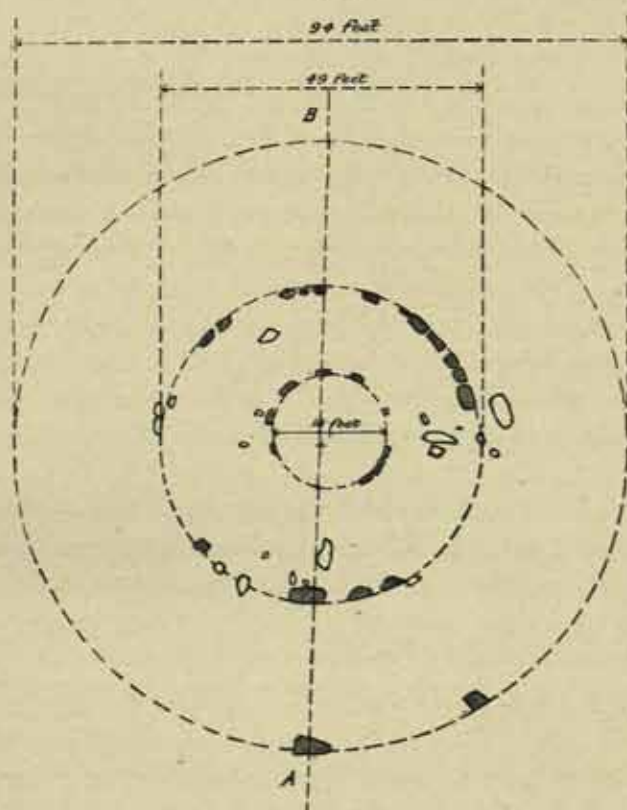
¹ *Memoirs of the Anthropological Society of London*, vol. iii, pp. 404 and 408, Dr. J. Beddoe on "The Stature and Bulk of Man in the British Isles."

as though it might, in its present form, have been the work of some later representatives of the early culture, who desired to unite in it the characteristics of various districts, and so to make it a generally representative monument; and the occasion for the erection of such a monument may be more or less correctly described in the tradition to which Geoffry of Monmouth and others have given a wide currency. This, however, is an unfashionable view, and is at the best extremely speculative.

APPENDIX A (INVERNESS).

The following circles in the country round Inverness are or were of the construction which I have called the Inverness type:—Tordarroch near Farr, Tordarroch near Crofteroy, Gask near Farr, Midlaig, Daviot (fig. 6), Culdoich of Clava, Milltown of Clava (2), Balnuaran of Clava (3), Little Urechany (*a*); all these

FIG. 6.

GROUND PLAN

Ground-plan of Daviot Circle, lent by the Society of Antiquaries of Scotland, from the illustrations to Mr. Fraser's "Descriptive Notes on the Stone Circles of Strathnairn and the Neighbourhood of Inverness."

are in Strathnairn. Kinchyle of Dores near Scaniport, Inches (Leys) near Inverness, Newtown of Petty; these are between the Nairn and Ness. Carn Inernan in Black Isle, Corrimony in Glen Urquhart, Culbirnie near Beaully, Bruiach (Beaufort near Beaully), Alvie. Twenty in all.

The following are known to have existed, and there are still remains of some of them, but not in such preservation as to enable the details of construction to be made out:—Duhallow of Aberarder, Mains of Clava (2), Culchuinneig (2), Cantraybruich (2), Dalgrambich of Cantry, Balaurit of Cawdor, Little Urechany, (b) Auldearn, Mains of Moyness, Golford of Moyness, Aldourie near Loch Ness, Torbrech, Culduthel, Stonyfield of Raigmore, Allanfearn, Culloden Tile Works, east end of Cullearine of Culloden, Mains of Dalcross, Balnabual of Dalcross, Flemington (2). Twenty-four in all.

There were also some small ordinary circles not of the special Inverness type, as, for instance, two at Milltown of Clava.

APPENDIX B (ABERDEEN).

The following circles in the country round Aberdeen have or have had the special stone locally called the "altar-stone," which differentiates the circles of the Aberdeen type from all others:—Old Keig, Balquhain, Balgorkar, Sinhinny. Auquorthies near Inverury, Newark, Lonmay, Chapel of Garioch, Lieth (Mill Hill), Auld Rayne, Midmar, Ardlair, Kirk o' Tough, Ardoyne, Dyce, Auchorthies near Aberdeen (a), Fiddes Hill, Strichen, Loudon Wood, Aikey Brae, Barmekyne of Echt, Rees o' Kleen, Garrol, Esslie, Malloch West, Cairnie, Monymusk. Twenty-six in all.

The following are so incomplete that it is uncertain whether they possessed an "altar-stone" or not:—Badentoy, Auchorthies near Aberdeen (b), Glossel, Cairn-fauld.

The following do not appear to have had an "altar-stone":—Hersch—Fordoun, Kingcausie, Broomend of Crichtie, White Cow Wood, Auchterless, Leuchar—Skene.

It is probable that additions might be made to all these lists.

DISCUSSION.

Dr. BEDDOE contributes the following notes on the subject of this paper:—

There are of course considerable anthropological differences between the North-east and the West of Scotland, but how far these can be carried back it is difficult to say. The modern Aberdonians are to a large extent the descendants of immigrants from England, Norway, Denmark, Holland, etc., who streamed in, especially, during the eleventh, twelfth, and thirteenth centuries. Much the same is the case with the district of Moray (Elginshire and the lower parts of Nairnshire and Banffshire; about Inverness, however, the blood is pretty purely Highland or Gaelic).

The Eastern Highlanders may be taken, with little doubt, to be descended from the Picts, whoever the Picts were. I believe them to have been mainly what we call nowadays Iberian, but there may have been other, perhaps Finnic, elements in them. The Argyllshire people since about 500 A.D. are probably in the main descended from Dalriadic Scoto-Irish colonists; but what were their predecessors, unless they too were Pictish? I know not. Everywhere near the coasts there are indications of a Norwegian cross, and this applies strongly to the north as well as the west. Lewis, Harris, Skye, Colonsay, Isla, have much Norse blood.

There is a type among the Gaels described by Hector Maclean and Sir Arthur Mitchell which is widely distributed, which they, I think, call Finnish, but I do not think that a good name for it. Short stature, dark complexion, large head, low intelligence, it is probably of very ancient date.

I think there is a really Finn-like type about Barvas, near Carlaway.

A GENEALOGICAL METHOD OF COLLECTING SOCIAL AND VITAL STATISTICS.

By W. H. R. RIVERS, M.A., M.D.

[PRESENTED APRIL 24TH, 1900. WITH PLATES II AND III.]

WHEN in Torres Straits with the Anthropological Expedition which went out from Cambridge under the leadership of Dr. Haddon, I began to collect the genealogies of the natives with the object of studying as exactly as possible the relationship to one another of the individuals on whom we were making psychological tests.¹ I soon found that the knowledge possessed by the natives of their families was so extensive, and apparently so accurate, that a complete collection of the genealogies as far back as they could be traced would be interesting and might enable one to study many sociological problems more exactly than would be otherwise possible, and with the stimulus of Dr. Haddon's encouragement I collected in Murray Island and Mabuiag genealogies which included the families of almost, if not quite, every individual now living on those islands. It is only, however, since leaving the islands, and while getting the data into order, that I have realised the many possibilities which I believe this method opens to the anthropologist.

Two genealogies are given as specimens. The Murray example (Pl. II) is complete so far as I was able to make it. The Mabuiag example, on the other hand (Pl. III), is only part of a complete family; Maku was married twice, and this genealogy gives his descendants by one of his two wives.

In both genealogies the descendants in the male line only are given; those in the female line are given in the families of the husbands to which the numbers given in brackets refer, thus in the Murray genealogy the descendants of Soroi and Gaum will be found in genealogy No. 65² giving the family of Soroi.

The names of the males are given in capitals and are always placed to the left of their wives', whose names are given in small type. The names in red in the Murray Island genealogy refer to the villages to which the individuals belonged; while in Mabuiag the names in red small type refer to the Augods (totems), and those in red capitals to the place to which an individual belonged, in the case of marriage outside the community.

The letters d.y. and d.unm. signify "died young" and "died unmarried" respectively.

The names which are underlined are those of individuals now living.

¹ See *Journ. Anthropol. Inst.*, N.S., vol. ii, p. 219, 1899.

² The numbers given in these cross references refer to the numbers of the genealogies as I have them arranged at present. In the future complete publication of these genealogies this arrangement will probably be altered, and the numbers would therefore not correspond with those given here.

In Murray Island, where it was rarely possible to go back more than two or three generations, I have collected nearly seventy families. In Mabuiag, on the other hand, where one could trace farther back, the genealogies run into one another much more and are consequently fewer in number. In the Mabuiag genealogy it will be noticed that each family has more than one totem. These run through the whole clan.

The method of collecting the data may first be described. In Torres Straits, as in so many other parts of the world, the system of kinship is so wholly different from that of ourselves that many of our simplest terms of relationship cannot be used without the danger of great confusion and error.

In collecting the genealogies I therefore limited myself to as few terms as possible, and found that I could do all that was necessary with the five terms, father, mother, child, husband, and wife. Care had of course to be taken to limit these terms to their English sense. The term which was open to the most serious liability to error was that of father, but I was able to make the natives understand very thoroughly that I wanted the "proper father."¹

I took one individual as the starting-point of a genealogy, found the name of his real father and mother, then if either had been married more than once; then the names of their children in proper order and ascertained the marriages and families of each child. Thus in drawing up the Murray genealogy, my starting-point was Wam, the mother of Pasi, my informant. After having ascertained the descendants of Iu and Wam, given in genealogy No. 13, I asked the proper father and mother of Wam, ascertaining that each had only been married once. The children of Gasari and Koni were then given in order. Wam's descendants being already known and Maiwas not having married, I only had to ascertain the descendants of Charlie.

When these were exhausted, I returned to Gasari and inquired the names of his proper father and mother, the names of their children in order, the marriages and descendants of Kebar, and so on, till all the descendants of Tagai had been given.

There were some interesting differences in the mode of collection in the two islands, which were probably due to the greater extent to which the natives of Mabuiag have come into contact with civilisation. In Murray Island it was necessary to conduct operations with more or less secrecy, and to go away with one, or at most two, individuals to a spot where there was no chance of being overheard. This secrecy was always preferred by the natives of Murray Island when talking about any of their customs, but was probably rendered more necessary in this case by the penalties attached to the utterance of the name of a relation, or, at all events, of a wife's relation. It will be readily seen that any given family would come into several different genealogies, thus the family of Wasalgi and Olai in the Murray genealogy was not only obtained from Pasi in this case but also from Azao when giving the family of his wife, and

¹ In Torres Straits, all the younger men knew "pidgin" or "trade English." When working with some of the old men, one of the younger men would act as interpreter,

from other sources, and one of the advantages of the secrecy necessary in Murray Island was that nearly every detail of these genealogies was obtained from two or more independent sources, with the result that different accounts corroborated one another to an extent which forms the best guarantee of the truthfulness and accuracy of memory of the natives. There would be occasional discrepancies in such details as the exact order of birth of several children, the omission of a child who died young, and rarely the omission of a childless marriage, but on the whole the agreement between different accounts was extraordinarily close.

In Mabuiag the conditions were different. The secrecy required in Murray Island was here completely unnecessary. I often compiled my genealogies sitting in the huts, or on the sand, with a crowd of women and children sitting round listening to the information which the men were giving me. In some cases, even, the women were consulted. Often I was able to get several of the older men together, who consulted about points of detail, and it was obvious that some were looked up to by the rest as authorities on the subject. In Mabuiag I cannot therefore bring forward, as evidence of the trustworthiness of my genealogies, the same degree of independent corroboration as in Murray Island, but the close corroboration of accounts obtained on different occasions and the general consistency of the whole collection furnish conclusive evidence of their essential accuracy. Independent corroboration has recently come from Mabuiag. Waria, the present Manus (or chief) of Mabuiag, who was one of the chief helpers of the expedition, was so impressed by the interest taken in the families of his people that he has drawn up an independent account of the genealogies of the island. Mr. Cowling, who lives in Mabuiag, has written out Waria's account, and has very kindly sent it to me, so that I have been able to compare his account of the genealogies with my own. In all essential points the agreement is very close, minor discrepancies being of the kind that I have already mentioned. Waria has also given a complete account of some families for which my data were only fragmentary, and the book sent me by Mr. Cowling will enable me to make the whole scheme of the Mabuiag genealogies very complete.

In Murray Island adoption was very common, and I cannot be certain that I have altogether avoided the errors due to the prevalence of this custom. A child was often adopted in the first few days of life (the adoption might be arranged before the birth of the child), and it was said that there were cases in which individuals had grown up, married, and died without ever learning their real parentage. I was aware of this, and was, in consequence, always careful that at least one of my informants in any given genealogy should not be closely connected with the family in question.

Mr. Bruce, who lives on Murray Island, has been collecting information for Dr. Haddon on various points since we left the island, and is inclined to be despondent as to the possibility of distinguishing between the real and the adopting father. At the same time, however, Mr. Bruce has sent some evidence

which supports the correctness of my genealogies in this respect. Two lawsuits, dealing with the disputed ownership of land, have recently been tried before the court in Murray Island.¹ These cases turned on the question of adoption and on the real parentage of two men. In each case several witnesses were called and the real parentage clearly established. On referring to my genealogies, I found that in each case my account of the parentage of the men in question is correct. One of these men, Olmek or Meiti, was an adopted son of Nau in the genealogy in Pl. II, and had inherited some land from Nau. Olmek had died, Nau's own children had left no heirs, and Tanu, as the next representative of Nau, had brought an action to recover the land from Olmek's widow. It was decided that Olmek was the adopted son of Nau, but nevertheless the right of his widow to the land was upheld.²

In these cases the real parentage of two individuals has been decided as definitely as such a question can ever be decided, and it is satisfactory that in each case my data have turned out to be correct. Nevertheless, it is quite possible that I have included adopted children in some families, but there is no doubt that, if this be so, the adopted child in such a case has become an integral part of the family, so that for many of the statistical purposes to which these genealogies may be put their value would not be affected.

In Mabuiag, so far as I could find, adoption was much less common, although I have accounts of several cases. The chief difficulty in this island arose from the custom of exchanging names. A man would exchange names several times during his life and would be called sometimes by one name, sometimes by another. In some cases not only would a man exchange names with another man, but their wives and children would exchange names at the same time, and in collecting my genealogies I would sometimes come across a man, wife, and child with exactly the same names as others in an altogether different family, leading me at first to suppose that, in one case or the other, my information must have been wrong, and it was often only after considerable investigation that I was able to establish the identity of different individuals.

Having shown that extensive genealogies can be collected among savage communities which possess a high degree of accuracy, I may now point out some of the uses to which they may be put in the exact study of sociological problems, and in the collection of social and vital statistics. I have not yet drawn up any complete statistics because I am hoping to make the genealogies still more complete by the addition of some details about which I am making inquiries from Mr. Bruce on Murray Island and Mr. Cowling on Mabuiag.

The first and most obvious value of the genealogies is that they enable one to study the systems of kinship very thoroughly. I have a large amount of material

¹ When we were in Murray Island, the court consisted of the Mamus (chief) of Murray Island and the Mamus of Dauar, with Mr. Bruce as an assessor. Since we left the island, a council of four natives has been added.

These cases will be published in full in the Reports of the Expedition.

giving the names of relationship which given individuals apply to other members of their community, and shall be able to give the exact equivalents of these in English terms of relationship. It will be possible to work out the system of kinship with a degree of definiteness which would not otherwise be possible. I need only say here that in both islands the system of kinship is of the kind known as "classificatory," and that the systems of the two islands present certain interesting differences.

The genealogies provide a large amount of material bearing on marriage customs. Dr. Haddon has described¹ the existence in the western tribe of Torres Straits of four intermarrying groups. The islands of Mabuiag and Badu together form one of these groups, and the genealogies show very clearly that the vast proportion of marriages take place between the natives of these islands who form one community in respect of marriage. Marriages out of the community are, however, not uncommon, and the data of the genealogies will give in statistical form the relative frequency of these marriages and the islands with which marriages of this kind most frequently occur.

In Murray Island, again, the vast majority of marriages will be shown to take place within the island and with natives of the two small adjacent islands of Dauar and Waier.² It will be shown, however, that marriages with natives of Erub or Darnley Island are not uncommon, and that occasionally marriages have taken place with natives of other islands. Similarly the frequency of marriages with members of other races will be shown.

Within the intermarrying communities, the genealogies will show very clearly the dependence of marriage in Mabuiag and Badu on the totemistic system. Individuals of the same clan do not marry one another. Among the Australians we know that not only is this the case, but a man of one clan must marry a woman of another given clan; a Cicada man must marry a Crow woman, and a Crow man must marry a Cicada woman. There is no distinct evidence of the existence within recent times of such a custom in Mabuiag, but it is probable that the statistics derived from the genealogies will show a tendency in this direction. Rough inspection of most of the genealogies shows that there is a tendency for certain clans to marry into one another, and when the genealogies are completed, one will be able to show the relative frequency with which individuals of one clan marry individuals of the other clans of the community.

In Murray Island, on the other hand, the genealogies will show that marriages are regulated by the places to which the natives belong. A man cannot marry a woman of his own village or of certain other villages. The totemistic system which probably at one time existed in this island appears to have been replaced by what may be called a territorial system. Here, again, the statistics of the marriages will show if there is any special tendency for certain villages to intermarry.

¹ *Journ. Anthropol. Inst.*, xix, 1890, pp. 301, 353, 356.

² The people of these islands now live on Murray Island.

The genealogies show that polygamy existed till quite lately in both Murray Island and Mabuiag. On the latter island in one case a man still has two wives living, though one has been discarded owing to missionary influence. The custom, however, appears to have been exceptional. In some of the cases of polygamy two or more of the wives were sisters, and in the absence of polygamy it was still common for a man to marry his deceased wife's sister. In the Mabuiag genealogy, the two wives of Nobua, viz., Pad and Swopei, were own sisters, and Panai and Gugui, the two wives of Iwau, were sisters according to the native system of kinship, though first cousins according to ours.

Another marriage custom which existed with polygamy, and will be shown by the genealogies to have been of frequent occurrence, is a form of the levirate. In the old days a man took his brother's widow in addition to any wife or wives he might already have, and even when he had only one wife, she was in many cases the widow of his brother. In the Mabuiag genealogy, Iwau's second wife, Gugui, was the widow of Madui, Iwau's younger brother. Azigo, the wife of Gaulai, was the widow of Wanp, who was Gaulai's second cousin according to our system of kinship, but Gaulai's brother according to that of the island. The marriage of Moipi, the widow of Wap, with Per was probably of the same kind, but I am not at present certain of the exact relationship of Wap and Per.

Another very common custom which continues to the present day is that brother and sister should marry sister and brother. In the Mabuiag genealogy this was the case with two of the children of Maku; Umu, the wife of Paitu, was half-sister (by the same father) to Kadi, who married Kiesu, Paitu's sister.

Another instance occurs in the next generation; Gebi, the first wife of Gemini, was own sister of Uwaga. Another instance in the present day is in the case of Gizu's wife, Mudulpur, who was own sister of Iwau, who married Gugui, Gizu's sister. Gugui is thus an example of three different customs; she was the sister of her husband's previous wife, the widow of her husband's brother, and married the brother of her brother's wife.

In Murray Island, also, the same custom existed, and in the genealogy given the marriage of Tanu and Saiop, and of Barsa and Akoko, are examples of the custom. A recent marriage in Murray Island was delayed for some time because the bridegroom had not a sister to become the wife of the bride's brother.

All that can be done in the present paper is to point out the existence of these marriage customs; the statistics derived from the genealogies will show their relative frequency and will, I hope, help to elucidate the relation of these various customs to one another.

Before leaving the subject of marriage, I may give one instance which shows the value of the genealogical method as a means of discovering facts which direct inquiry failed to elicit. In spite of the certainty of the natives that a man never married a woman of the same clan, I met with instances in which a Dangal (dugong) man had married a Dangal woman. When I pointed this out to my informants at Mabuiag, I altogether failed to get any explanation, although I

returned to the subject repeatedly, and I was inclined to believe that these cases, which according to the expressed views of the natives would be cases of incest, were evidence that the totemistic system was breaking down. It was in favour of this view that all the cases were comparatively recent. It is only lately, on working up the genealogies, that I have found that in these cases the secondary totems were different, thus a $\left. \begin{array}{l} \text{Dangal} \\ \text{Kodal} \end{array} \right\}$ man has married a $\left. \begin{array}{l} \text{Dangal} \\ \text{Gapu} \end{array} \right\}$ woman. We do not at present understand the significance of these secondary totems in Torres Straits, but there is little doubt that in this special case we have to do with separate clans, each having the dugong as its chief totem, and it is significant in this respect that the $\left. \begin{array}{l} \text{Dangal} \\ \text{Kodal} \end{array} \right\}$ clan belonged to Mabuiag, while the $\left. \begin{array}{l} \text{Dangal} \\ \text{Gapu} \end{array} \right\}$ clan belonged to Badu.

The genealogies will illustrate other features of the totemistic system, in addition to those connected with marriage, which have already been considered. They will show very clearly, for instance, the descent in the male line, and the transmission of the secondary totems through the whole clan. Dr. Haddon has collected a number of facts which point towards a grouping of the totems of Mabuiag, and it has been seen that the marriages probably show something of the same kind, and I hope that the marriage statistics will furnish material which will help Dr. Haddon to clear up the meaning of this grouping. The significance of the secondary totems is another problem on which it is to be hoped that the genealogies will throw some light.

The social customs connected with names form another group which will be very largely illustrated by the genealogies. It will, for instance, be very clearly shown that there was in Torres Straits no trace of a "tabu" on the names of the dead. Names often recur in different generations, and several instances occur in which, one child having died, the next child of the same sex has been given the same name.¹ An extreme example of the absence of this "tabu" is the case of a woman named Salmui. This is probably a man's name and was the name of this woman's father. He was drowned shortly before the birth of this daughter, and his name was given to the posthumous child notwithstanding the sex. Such a case shows not merely the absence of a "tabu," but a very decided preference for perpetuating the name of the dead.

Numerous other interesting points in connection with names will also be brought out by the genealogies, such as the characters of male and female names, the relation between the names in Murray Island and Mabuiag, etc.

The subjects so far considered come under the heading of social statistics.

The special problems which come under the heading of vital statistics include the average size of families, the proportion of the sexes, the proportion of children

¹ In the Murray Island genealogy there is an instance of this; the firstborn of Charlie and Kaibor was named Kuliar, and died in infancy. While we were in Murray Island twins were born, and the elder received the same name. This child also died when a few weeks old.

who grow up and marry to the total number born, the proportion of the sexes who grow up to adult life, etc. The genealogies will furnish a large mass of material on these subjects, and it may even be possible to obtain some idea of differences in these respects in different generations.

A question of very great biological interest, on which the statistics may throw some light, is that of the relative fertility of different classes of marriage. From the biological point of view, the marriages in Torres Straits may be divided into three groups, viz., marriages within the island or intermarrying group, marriages out of the island or intermarrying group, but with members of the same race, and marriages with members of other races. In the first group there is a large amount of intermarriage, although much controlled by the marriage customs, thus in Mabuiag marriages with a second cousin, or second cousin once removed through the female line, were common, and it was very difficult to find anyone in either Murray Island or Mabuiag to whom a given native would not apply some term of relationship. It will, therefore, be interesting to compare the fertility of these marriages with others in which new blood has been introduced from outside, and the genealogies will probably enable one to do this in a sufficient number of cases to justify some definite conclusions. It is worth noticing here that Maku in the Mabuiag genealogy, who has probably more lineal descendants on Mabuiag than any other man, married two wives from Boigu and Dauan respectively. The natives of these islands are of the same race as those of Mabuiag, but belong to a different intermarrying group.

During the last twenty or thirty years a large number of marriages have taken place with members of other races, especially with Melanesians, from the Loyalty and New Hebrides Groups. There have also been a fair number of marriages with Polynesians. In collecting the genealogies I was struck by the frequency with which these marriages were childless, and I have little doubt that when the statistics are worked out they will show that fewer children were born to such marriages than to those between members of the same race. If such a fact could be established, it would have great biological interest, but I am afraid that, in this case, there are disturbing factors. Many of the marriages were only of a temporary nature, terminating on the return of the husband to his own home. We know also that abortion was practised in Torres Straits, and it is possible that this practice may have been adopted more commonly in these than in ordinary marriages. The conditions are too complex to allow any confident generalisation without more definite knowledge than we possess.

While collecting the genealogies, I was frequently informed of various interesting facts in the lives of the people whose names occurred, and I believe that it would be possible to write a full and fairly accurate account of the recent history of a savage community by taking a complete genealogical record of the community as a concrete background. One of the chief sources of the vagueness which too often characterises the accounts of historical events obtained from savages is the indefiniteness of their ideas of time, and the genealogical details

would give definiteness to the narrative and serve the same purpose as dates in the history of civilised communities.

All who have experience of the savage mind must have experienced the difficulty of eliciting information on abstract questions, while, on the other hand, there seems to be hardly any limit to the number of concrete facts which can be remembered. The memory of the savage for names is as highly developed as in any European, and far more so than in those Europeans who are accustomed to abstract thinking. The great value of the genealogical method is that it enables one to study abstract problems, on which the savage's ideas are vague, by means of concrete facts, of which he is a master. It is a means of utilising the store of information which the extraordinary memory for detail of the savage has enabled him to accumulate.

The object of this paper is to bring before the members of the Institute an anthropological method, and I have merely sketched some of the problems which this method may help to solve. The statistics based on the genealogies of Torres Straits will, I hope, supplement the sociological material collected by Dr. Haddon, to whom I am glad of this opportunity of expressing my great indebtedness.

DISCUSSION.

Dr. JAPP, having complimented Dr. Rivers on the results of his very extensive labours and his excellent system of tabulation, which reduced most complicated phenomena to comparative simplicity, ventured to ask whether in the case of "interchange of sisters," referred to by him as existing among the people he was dealing with, there was anything in the least corresponding to what was common among the Gallas of East Africa. A young man there desirous of "exchanging sisters" with another, but, having no sister, would embrace the first opportunity to go to war or on raid to procure a female captive. Having first with all due formalities initiated her into the clan or tribe, the young man would then exchange her as a sister with his friend for his sister to become his bride. Dr. Japp remarked further that a noticeable peculiarity in this case was that the origin of these Gallas had caused much discussion among anthropologists, who declared that they were certainly not pure negroes, others again asserting that they presented proofs of really tracing to a white or a yellow race, and that they practised nothing like purchase, pure and simple, in marriage.

Dr. RIVERS said there was, so far as he knew, nothing corresponding to this in the case of the tribes he had dealt with.

STONE IMPLEMENTS FROM PITCAIRN ISLAND.

BY JOHN ALLEN BROWN, F.G.S., F.R.G.S.

[PRESENTED MAY 15TH, 1900. WITH PLATE IV.]

THESE stone implements from Pitcairn Island were brought home, with other objects of anthropological interest, by the author's nephew, Lieutenant Gerald T. F. Pike, R.N., then of H.M.S. *Comus*, when on a voyage in the South Pacific. The largest specimens are of such unusual form and size that description of the implements and Lieutenant Pike's notes in reference to them will no doubt be of interest to the members of the Institute.

Pitcairn Island was discovered by Carteret in 1767. It was then uninhabited, and continued unoccupied until the mutineers of the *Bounty* settled there. The island is about three miles long and about two in breadth; it is an outlying island of the Paumotu, Tuamotu, or Low (or Dangerous) Archipelago, but it is nearly 100 miles south of Oeno. There is no land to the east between it and Easter Island, from which it is distant about 900 miles, except two small islands, Elizabeth Island and Ducie Island. Pitcairn rises from the depth of the ocean in rugged cliffs of dark, dense basalt, and there is no anchorage except on a bank at its western extremity, and the best of its three landing-places is dangerous from the violence of the surf and a strong undercurrent. The long axis of the island rises on a range of steep hills attaining a maximum of 1,008 feet. The whole island is the result of vast submarine volcanic activity in the remote past. There are no springs or streams, and drinking water is often scarce, but the vegetation is luxuriant.

The stone implements obtained by Lieutenant G. Pike appear to be made from the hard compact basaltic rock of the island; in fact, it is the only material there which is suitable for the manufacture of stone implements. There are among them two classes or types, which are probably of different age, but they were all found about a foot from the surface. In the first series are the small stone axes or adzes now exhibited, of which five or six were brought home. They are chipped into shape and only ground on the cutting edges at the blades (Plate IV, 6, 7). They show one of the characteristic features of some of the stone axes from the South Seas, *i.e.*, the sides are worked to a ridge, and not flat, as in the case of the axe-heads of the Maoris of New Zealand, of the natives of the Hawaiian Islands, etc. The same mode of working is noticeable from Tahiti, the Wallis Islands, etc.

The second group of stone implements are entirely different in form. The axes also are chipped into a ridge at the sides, but in other respects they differ

entirely in shape or type from the first group (Plate IV, 1, 2). The body of the axes is often ground, but the large one with expanding blade (No. 2) is chipped all over and unground. In Lieutenant Pike's collection are several large axes of this kind exactly like it, except that some of the specimens are larger.

It is a remarkable feature of these larger axes or choppers, that the blades are incurved and expanding at the cutting edge, which gives them the appearance of the mediæval iron battle-axe of Europe, and they present us with what appears to be a much more advanced type, and as far as I know it is unique as a stone axe; at any rate, I have not been able to find anything like it in the British Museum, and M. Hamy, in speaking of this exhibit at the British Association last year, was understood to say he knew of no other specimens of the same kind as ever having been found before. No. 2, already quoted, is 15 inches long by $10\frac{1}{2}$ inches at the widest part of the curved blade, and about $2\frac{3}{4}$ inches in thickness at the thickest part. It is skilfully worked by chipping all over, including the blade, and not ground there as in the smaller axes first mentioned.

The butt end is reduced and wrought for easy insertion into a handle, which must have been very stout and heavy to carry it. There is a stop ridge to prevent the stone from being forced so far into the handle as to split it. These axes are all chipped to a ridge as in the group first described.

It is of course possible that these large axe-shaped implements may not have been mounted for that purpose. It has been suggested that such a wide-bladed implement might have been used for digging when fixed in a straight handle with a T-piece for the foot to drive it into the ground, but it does not appear to be probable, seeing that the incurved expanding blade forms the most important part of the form, which would hardly be the case with a digging tool or spade.

There is another great difference between these large axes and the small ones. In them the basalt has patinated white, whereas the latter are not bleached and appear to owe their brown surface to an iron oxide.

Among the other implements of the second class there is a long, heavy specimen which might be used as either an axe or an adze according to the hafting (No. 1). It is $19\frac{1}{2}$ inches long by $4\frac{3}{4}$ inches across the broadest part of the blade, which in this case is not expanded and incurved as the last. It has been chipped all over and then ground down all over, so that in places the chipping is nearly obliterated, as for instance at the broad part of the blade and on the cutting edge. There is a high ridge towards the butt, which is reduced for insertion in a heavy club as a handle. As in the other cases, the weathering has produced a white patina.

The smaller axe or adze (No. 5) is of similar type. It is made of the same rock and shows the same patina. It is chipped into the long axe form and ground down to a cutting edge from each face, and the grinding is continued over the greater part of the surface. Like the last, the butt end is tapered by grinding to receive the handle, and there is the usual stop ridge, but only about $2\frac{1}{2}$ inches from the end. It is $9\frac{5}{8}$ inches long by $2\frac{3}{4}$ inches broad at the widest part.

Several long bleached basalt chisels were discovered, of which No. 3 is a specimen. It is 1 foot 5 inches long, and tapers from the centre towards each extremity, terminating at one end in a ground chisel edge. It is of cylindrical cross section, and has been polished all over.

The use of such an instrument to a savage is not apparent. It may have been employed as a chisel to dig out a trunk for a boat, and it would have been suitable for use as a heavy club as well, as it is ground down at one end to take the hand or a handle. There are no signs that it has been used, nor is any battering visible.

No. 4 is a specimen of several heavy, nearly cylindrical stone clubs, ground or polished over the entire surface. It is $1\frac{1}{2}$ feet long and tapers from the centre towards the extremities, which is not the usual form of a club, and there is no reduction of the implement at either end for use in the hand, except the double tapering mentioned. It must be old, or the bleached surface of the black basalt would not have been formed. It has been suggested that this instrument may have been used as a beater or roller for beating bark in the manufacture of Tapa cloth, but it differs entirely in form from the stone beaters from Tahiti and other islands of the South Pacific. The latter are square in section, and the flat sides are engraved or cut on the surface in crimping or other patterns to produce a design on the cloth when finished. It may have been employed for crushing grain by rolling it in a hollowed wooden or stone mortar, as seen in specimens in the British Museum.

Besides these implements, Lieutenant Pike mentions the discovery of rude sculptures in relief on the face of cliffs in one part of the island as being well known to the inhabitants, and there are other prehistoric remains there which should be investigated.

The Rev. T. B. Murray, who resided for some time at Pitcairn,¹ speaks of several stone hatchets and spear-heads and a large stone bowl as having been discovered there. He mentions also that human skulls have been found there in graves with a pearl shell underneath each, and he infers that they were probably interred some centuries ago, but he gives no description of these crania and no information as to their affinities with skulls from other islands in the South Seas. Other persons who have visited the island have reported in the same way, that "skeletons with a pearl mussel beneath the heads were discovered there."

The most important fact mentioned by Mr. Murray is the discovery of four large stone images on a platform in the rock on a peak similar to those found at Easter Island. They are of rudely human form, with the hips roughly sculptured out of red lava. He found also on the east side of the island rude carvings of men, a bird, etc., in a cavern situated on the face of the cliff, all of which is corroborated by Lieutenant Pike, as at the time of his visit the figures were still existing, though much weathered. Other persons who have visited the island confirm this account, and say sculptured stone pillars and stone axes, etc., occur similar to those found at Rapanui (Easter Island).

¹ "Pitcairn," 1854.

Two other axe-heads are known of the same type as those in the first series, and formed of the same rock. They were obtained in 1841 from Pitcairn and are now in the museum at Dover. The larger one is straight and not incurved at the blade as are those of the second series. It is chipped into shape all over, except where the original surface of the block of volcanic rock of which it is made remains on one face. The second and smaller specimen is ground on each face to a cutting edge at the blade.

I attach much importance to the difference in the type of the axes obtained from islands of the South Seas, and as shown by sides being ridged in the case of the instruments from Pitcairn and other places in contradistinction to those found in different places in this extensive region. It may be that the difference in the shape and mode of working of these implements, combined with other evidence, affords a clue to the difference of race and line of migration of the people who have probably in succession inhabited the islands of the South Pacific Ocean.

There are many anthropologists who may, from their knowledge in other ways, throw light upon this interesting subject, though my remarks apply generally only to the types of stone implements. The axes or small hatchets from Tahiti are of exactly the same type (with ridged sides) as the smaller ones, but as far as I know, nothing like those of the large axes and other instruments has been found there or anywhere else in this region.

I have, by the courtesy of the officials, examined the specimens of rude stone axe-blades in the British Museum, and find that the axes from Tonga are of the same form and show the same mode of chipping to a ridge at the sides as the small specimens from Pitcairn (first series); there is, however, in the detailed information in the catalogue describing them more fully, a note which says that five or six of the axe-heads I examined, though said to have come from Tonga, are traditionally believed to have come from Uvea (Uvea î), Wallis Islands, west of Samoa. In none of these do the large wide incurved blades occur. The similarity of the type to the series of smaller specimens is, however, very marked.

The axe-heads from Samoa are rather flat at the sides, but not very pronounced in that respect. Others from there are more ridged and rather resemble the small axes from Pitcairn.

The stone axes from the Chatham Islands, like the Maori specimens, have flat sides, and therefore differ entirely from the Pitcairn axes. Nor is there any similitude between them and those in the British Museum from Cook's or Hervey Islands. They are of greenstone and ground all over.

In the North Pacific the axe-heads from the Hawaiian group have very distinct flat sides, and therefore in type are quite unlike those from Pitcairn.

The few stone axes of basalt from Easter Island in the British Museum are mostly very thick and cumbrous, and with rather flat sides. There is, however, one among them which somewhat approaches to the small axes of the first series described in this paper. There is stronger evidence of a racial connection between Easter Island and Pitcairn in the past in the gigantic as well as smaller

stone statues which have been discovered in the latter, as well as abundantly in the former, their flattened foreheads made, as is now known, to take a crown or other headgear.

Pitcairn is more than 900 miles west of Easter Island, but such a distance is not an impossible one to travel, and there are the two small islands already mentioned (Elizabeth and Ducie Islands) a little to the north of the direct route. Moreover, the natives of Easter Island held the tradition that they came from Rapa Iti (or Little Rapa) or Oparo, one of the Tiberai or Austral group. If so, Pitcairn would be on the direct line of route from the west. They have been considered to belong to the Sawaiori or brown Polynesians. Pitcairn may well have been a stopping-place nearly midway to their ultimate destination.

The prehistoric monuments at Easter Island, etc., are of the greatest importance in considering the early race, or more probably races, who found their way to Pitcairn, and for that purpose Mr. W. J. Thompson's *Report to the U.S. Museum* 1888-9, throws much light on the subject. Mr. Thompson gives the number of stone statues as 555, varying from 70 feet in height, the smallest 3 feet, the latter found in caves, the larger ones on platforms of rock. They are all of the same type—the head long, the eyes close under the heavy brows, the nose long, low bridged and expanded at the nostrils, the upper lips pouting, the aspect slightly upwards, and the expression firm and profoundly solemn.

The heads were in all cases cut flat on top to take the red tufa crowns, which have been found. The images represent the human body only from the head to the hips, where it is cut squarely off to afford a good polygon of support when standing. The ears are mere rectangular projections. Some of these statues are much older than others, and greatly weathered.

As far as description goes, this might very well serve for the stone idols found at Pitcairn. The sculptured rocks are covered with carvings representing human faces, birds, fishes, and mythical animals, all much defaced by the elements. It would be of interest if these carvings could be compared with those in the cliffs at Pitcairn—the remains of large stone elliptical houses of uncut stone, each with a small cave or niche to contain small images. These curious dwellings seem to have been built for the accommodation of the natives, while the festival of the "Sea-birds' Eggs" was being celebrated. The representation of birds on the rock in both Easter Island and Pitcairn affords another analogy.

Tablets with inscribed letters or signs in a language now unknown have been found on the former and should be sought on the latter.

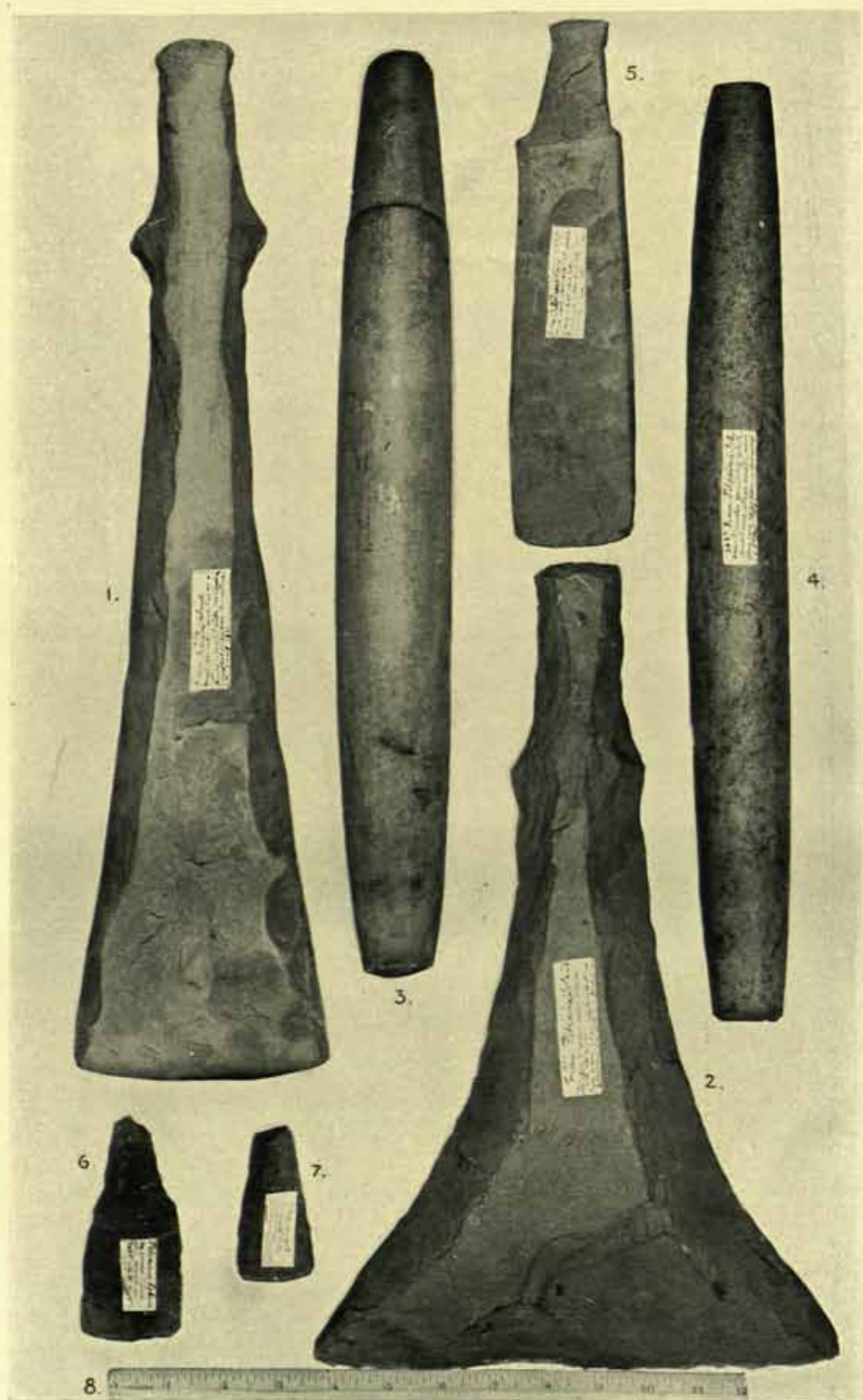
Before concluding, it would be well to mention the bust cut in coral, now in the British Museum, obtained by Professor Haddon. It is of the same type, with flat head, etc., as may be seen in the Easter Island stone statues at the entrance of the British Museum. It was obtained from an island in Torres Straits. Mr. Thompson believes there is evidence of two races having occupied Easter Island, and that probably is the explanation of the two forms of stone implements discovered at Pitcairn. Both are probably very ancient, for the bleached surface of

those of advanced type could not be produced in the black basalt without subjection to the action of the air or water for a long period.

DISCUSSION.

Professor E. B. TYLOR, F.R.S., said that it was clear that these implements from Pitcairn Island show extraordinary specialization of form, independently of those of other islands; but that to generalise on the whole subject would be premature. The partial grinding of some of the implements suggests comparison with the ground instruments of Australia, with reference to the possibility that this method may have been introduced in both cases from the northern islands. He also expressed the desire that, considering the great interest attaching to the comparison of the images from Pitcairn Island with those of Easter Island, some representations of the former should appear in the *Journal of the Anthropological Institute*.

Mr. LEWIS mentioned the figures carved on the backs of the Easter Island images at the British Museum, and regretted that they were not so placed as to be more easily seen.



IMPLEMENTS FROM PITCAIRN ISLAND.
Described in the paper by Mr. J. Allen Brown.
Scale in inches : $\frac{1}{2}$ natural size.

ON THE EARLIEST COMMUNICATIONS BETWEEN ITALY AND SCANDINAVIA.

BY PROFESSOR OSCAR MONTELIUS.

[PRESENTED MAY 29TH, 1900. WITH PLATES V, VI, VII, VIII.]

THE commerce between Northern Europe and more southern countries goes very far back. During the first centuries after Christ, the Roman Empire extended over a great part of Central Europe, and the distance from the Roman territory in Germany to South Scandinavia was not a great one. In fact many Roman objects dating from those centuries have been met with in Sweden and in the other Scandinavian countries. But there have also been found in Scandinavia a great number of things belonging to the time before Christ, which can be shown to have been brought from Italy and Central Europe.

Bronze vessels like Figs. 1-4 date from the last centuries B.C. Many vessels of these types are known from Sweden, Denmark, and Northern Germany. They were all fabricated in Italy or other parts of Southern Europe.

From the middle of the last millennium B.C. date such *ciste a cordoni* as Fig. 9. The original of this figure was found near Lubeck; many similar *ciste* have been met with in Northern Germany, in Hanover as well as in Posen. To about the same time belongs the *situla* Fig. 8, found in Denmark. Other *situle* of the same type are known from Northern Germany. The *ciste a cordoni* as well as the *situle* were imported from the South, and many vessels exactly of the same types have been found in Southern Germany, in Austria, and Italy.

Earlier than the *ciste* and *situle* just mentioned are such bronze vessels as Fig. 10; and still earlier, those like Fig. 6. Five buckets of the same type as Fig. 10 are known from Northern Europe: one from Brandenburg, one from the northern part of the province of Saxe, two from Denmark, and the fifth from Sweden. It is very remarkable, that all these five foreign vessels were deposited with northern bronzes of the 5th period of the Scandinavian and North German Bronze age. Buckets of the same type occur in Southern Europe: one was found in Austria and another in Northern Italy, in one of the pre-Etruscan tombs at Bologna. Several vessels like Fig. 6 have been discovered in Denmark and Northern Germany, and other vessels exactly of the same type are known from more southern parts of Europe.

Personal ornaments of thin bronze with decorations of repoussé work in simple patterns, Fig. 7, belong to the same time as the buckets like Fig. 10. Such

ornaments are not rare in Sweden, Denmark, and Northern Germany; and they too have all been imported from Southern or Central Europe.

To the beginning of the last millennium B.C. belong such swords as Figs. 11 and 15, with blade and hilt of bronze. Some swords like Fig. 15 have ornaments of iron inlaid on the hilt. Their blades, however, are of bronze, and the inlaid ornaments of iron prove that they date from a period when iron had only just begun to be known. The new metal was so rare that it could only be used for decoration; the weapon itself was of the old material, bronze.

Many swords of these two types (Figs. 11 and 15) have been found in Denmark and Sweden. The original of Fig. 15 was discovered, some years ago, in the south-western part of Finland, opposite the Swedish coast. Exactly similar swords are common in Central Europe and Italy, and were evidently fabricated there. That swords like Fig. 15 were cast in Central Europe cannot be doubted, for a bronze mould for such a hilt (Fig. 14) has been found in Bavaria.

I mention also objects which were made in Central Europe, because their presence in Scandinavia tells us that about and before the time of the foundation of Rome there really was commerce between Northern and Central Europe; just as, on the other hand, the great number of Italian objects of the same period found in the Central European countries shows us how important the trade between those countries and Italy already was.

The bronze shields, Figs. 12 and 13, are nearly contemporaneous with the swords mentioned just now. One of these shields was found in Sweden, the other in Denmark, and similar bronze shields are known from Denmark and Germany. All of them were discovered in peat-bogs, and their wonderful state of preservation is due to the peat.

Similar repoussé ornaments to those in Fig. 12, which consist of wheels and pairs of snakes, and are imitations of the common Egyptian representation of the sun's disc and the two uræus snakes, are to be seen also on other bronze vessels (Figs. 16 and 18) dating from the very beginning of the last millennium B.C.

Two big vases like Fig. 16 were taken out from a peat-bog in Denmark; and two quite similar ones from a peat-bog in Mecklenburg. Two similar vases are known from Central Europe, one of these discovered in Bavaria and the other in Hungary. And a vase of the same form and with the same ornaments was found in Northern Italy.

The original of Fig. 18 was found in a Swedish peat-bog. An exactly similar vase, containing eleven gold-cups, stood in a Danish peat-bog. Similar vases have also been found in Denmark, Northern Germany, and Bohemia. Now, as several bronze vases of the same shape and with just the same decoration appear also in Italy, there can be no doubt that all these vases are of Italian origin. They occur both in Northern and Central Italy.

Of the same period as the big vases (Figs. 16 and 18) date such bronze-cups as Fig. 20, and many of them are found in Southern Scandinavia, Northern Germany, Central Europe and Italy.

A little earlier are bronze cups of the type Fig. 19. They, too, were imported into Scandinavia and Northern Germany from Italy or from some part of Central Europe, where the Italian influence was very strong.

To about the same time as the last mentioned bronze cups belong the small bronze chariots supporting bronze vases (Fig. 5), which have been discovered in Sweden, Denmark, Northern Germany, and Bohemia. They also are imported from the South.

From a more remote period, the middle of the second millennium B.C., there are a great many highly interesting proofs of the intercourse between Scandinavia and Southern Europe. The Baltic amber appears in Greece at least 1500 years B.C., for several hundred beads from Mycenaean tombs have been shown by chemical analysis to be of Baltic amber. On the other hand the influence of Southern Europe on Scandinavia was at the same time so strong that bronze fibulae (Fig. 17) and spiral ornaments of southern origin were common in our countries.

We can trace the same influence back not only to the beginning of the second millennium—Italian bronze daggers (Fig. 21) are found in Northern Germany; bronze daggers imitating them and bronze axes ("celts") of Italian form are common in Germany and Scandinavia—but even to the third millennium B.C., as I just have proved in a paper, printed in Germany.¹

It is a most remarkable fact, that all those bronze vessels and other objects coming from Italy are so common in the western part of present-day Austria, in Germany—especially in the more eastern parts—and in Scandinavia, but are so extremely rare in Western Europe. No such bronze vessels as Figs. 5, 6, 8–10, 16, 18–20 have been met with in France, Great Britain, or Ireland.

We can trace the route followed by the commerce that imported those objects into North Germany and Scandinavia. It was the same route as that which was followed by the amber trade from Denmark and North Germany to Southern Europe.

The time that was indispensable for carrying the Italian articles to Scandinavia was not long. We know that in the last century B.C. the tin came from the English Channel to Marseilles in about thirty days, so that two months would be sufficient to bring the bronzes from Northern Italy to the coast of the Baltic. And if we do not consider two months sufficient, we must at all events admit that six months or a year, or at least two years, would be enough. And if so, we are fully entitled to say that the Italian bronzes imported to Scandinavia were in use contemporaneously in Sweden and in Italy.

DISCUSSION.

The PRESIDENT: I need say nothing about the interesting character of the very remarkable lecture, as that is obvious to all of us; but I think this lecture has

¹ Montelius, *Die Chronologie der ältesten Bronzezeit in Nord-Deutschland und Skandinavien* (Braunschweig, 1900).

this advantage over those at University College, satisfactory both to him and to us, that it can be followed by a discussion, and I should like to invite such a discussion upon the clear *résumé* which has been laid before us of the relations between the north and south of Europe in remote periods.

MR. MYRES: I am sure that we have all followed with the greatest interest this detailed and masterly exposition of the work which Dr. Montelius has done in this very important subject. Dr. Montelius has given us a full and clear idea of the method of argument by which he has arrived at the conclusion that the successive styles of metal working and other industries as found in North and Central Europe approximately coincide in date with the styles which they most resemble in the Mediterranean area. It has, as we know, been very frequently assumed that a style of metal-working, which is found in the north, belongs to a considerably later epoch than that of a similar object found in the south. But what he said on the question of transit resolves the doubts which some of us have felt as to that. It would probably be possible to collect examples from other parts of the world also, of what seems surprisingly rapid transit from one district to another; one could quote for example the average rate of traffic in Central Africa and Persia, and other instances such as the Himalayan caravan routes, which present far greater difficulties than those which traverse the Alpine barrier. We can well understand, therefore, that although the time allowed for communication may frequently have to be expressed in years, it certainly does not run into centuries.

Another point upon which we should like to have further details, is the extent to which Dr. Montelius believes that in the course of a long series, of the kind which he has described, each successive period in the north may be regarded as apparently contemporary with the corresponding period in the south. One can understand that at the end of an interval of 500 or 1000 years the total rate of progress in the north might approximate to the total rate of progress in the south. But we know that in the Mediterranean, for instance, the rate of industrial progress was in all probability not uniform. We have evidence from time to time, in the Mediterranean, of halts taking place, of complications due to political changes and to emigrations, with the result that for the time some parts of the Mediterranean were apparently plunged back, or at least marked time for a while. Now we should suspect that in a case of that kind corresponding facts would be appreciable in the northern areas; and that at the time of a period of active and progressive commercial development in the Mediterranean, the later style would sometimes outrun the earlier in the northern area. I should like, therefore, to ask Dr. Montelius whether he finds that a period of stagnation in the Mediterranean is represented by a correspondingly long period in the north, and a period of expansion of commerce in the Mediterranean by a succession of short periods. I only mention this point because it might perhaps be of importance to anybody who failed to be convinced by the argument of actual caravan time-tables; and because, before those time-tables had been so clearly presented, some of us here had been inclined to argue that way; my own impression is that very little such overlapping in all probability has taken place, and that we can infer in turn from this that the rate of transit was fairly constant. If it were possible for Dr. Montelius to enlighten us on this point, and to tell us whether he has worked over his material in this way to any extent, the information would be of great interest.

Professor MONTELIUS: I can say this, that we can always distinguish these two things: objects made in the south and imported to the north, and things made in the north as imitations of them. We have not the Roman culture in Scandinavia, but we have something proving a strong influence from that direction. Taking the case of the Benin bronzes as a parallel, we can show that at a certain period there was a connection with Europe, when those peoples made their imitations of European things; and here, as we can fix the European periods, we can say what period that was. I think I can trace the different periods, in the south, centre, and north of Europe, and I can say for each period in the north whether it is exactly contemporaneous with each period in the south, because we have so many things made in the south and exported to the north, and we can date them with fair accuracy. It is not impossible to answer Mr. Myres' question, but the details are so voluminous that they could hardly be given now.

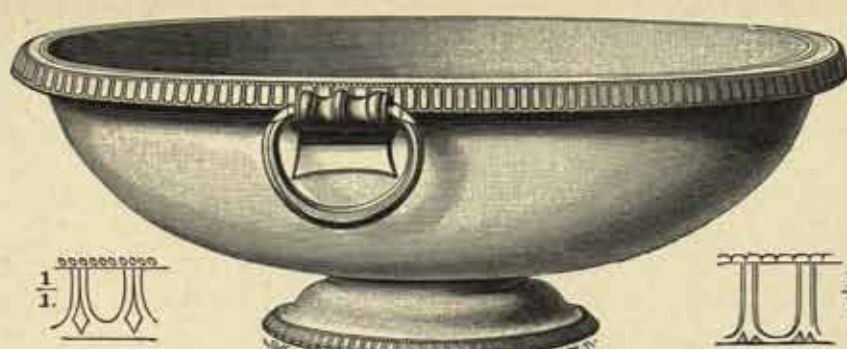
I should like to add one remark. I said that an object could make the journey from south to north in anything from half a year to two years. But the chief thing to know is what was the outside time that was necessary. We cannot say that everything was actually carried in so short a time, but if the average time is not *one* but *ten* years, it is all the same thing—and the object is contemporary.

Mr. LEWIS: I come here quite as a learner in this subject, but as the Chairman has said, Dr. Montelius has entirely proved his case. I am sorry, however, that he was not able to give us his views on stone tombs. The idea of making a stone tomb to hold a body has occurred to all peoples, and unless some very strong resemblance exists it is not possible to deduce any connection. Now there are considerable differences between the stone tombs of Holland and those of Brittany and this country, and differences exist also between tombs found in different parts of the same country, so I am afraid we cannot say much that is useful about them. I may mention one thing with regard to two tombs, one found in the south of England, and one in the north of Scotland, 800 miles apart. Both of them appear to have been laid down to exactly the same measure, the unit of measurement being the cubit of inches. It is quite obvious from what Dr. Montelius says that although the time of transit cannot be fixed to days, months, or even years, yet it is quite another thing to talk about centuries.

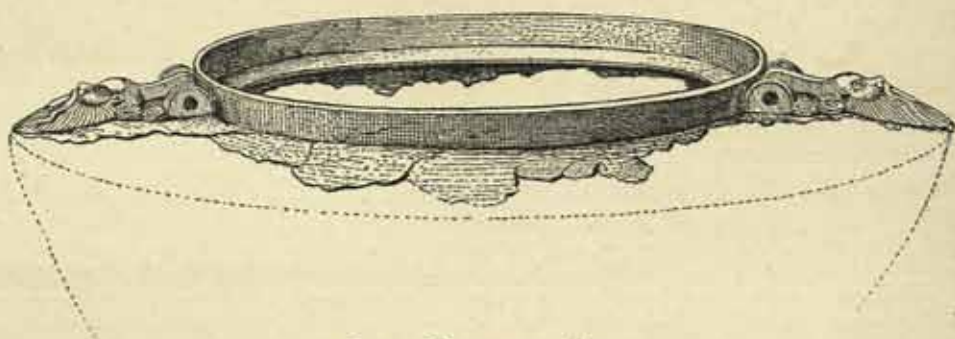
The PRESIDENT: In asking you to return thanks to Dr. Montelius I should like to say two or three words, more particularly on the subsidiary lessons which we get from such a statement as he has made this evening. I am inclined to agree with Mr. Lewis that the case is practically proved, and an interesting point is the very short time it took to make what we even now consider by no means a short journey. Many of these points have been before us for a number of years past, but I have never before heard so clear an exposition as Dr. Montelius has given us. I may say I think that Dr. Montelius is in an exceptionally fortunate position, as he belongs to a country where more care is taken of antiquities than in any other country of Europe, not so much as regards their exportation, but in such a way that they remain in museums where they can be studied; with the result of producing such lectures as we have heard to-night. As long as we are not very patient of legal restrictions, and think, when we find something, that it will look better in our drawing rooms than in any other place, we are not likely to do justice to our museums. But in course of time, perhaps, we shall improve. One of

the lessons we can easily learn from Dr. Montelius' lecture is the enormous value of archaeology in reproducing for us, in an absolutely accurate form, the history of prehistoric times. In critical literature we are confronted with varying accounts of historians set side by side. The advantage of dealing with prehistoric times is that the evidence is truly set before us by the things themselves, and it depends on our own judgment as to the deductions we make. There are several points which have occurred to me, but as the statutory time has arrived I will not enlarge upon them, except to point out how little effect this commerce had on prehistoric sites in Britain, and on our own art. Looking at these beautiful bronze vessels, ornamented with bosses and birds, I cannot help thinking that they are things which might have come to us, but did not. All these trade routes in primitive times had *termini*, and their object was amber. It is a curious thing that we have so few evidences of continental intercourse with Britain. We had, indeed, some intercourse, but to nothing like the extent that existed between Scandinavia and Central and South-eastern Europe. And this is the more curious because we had here not only tin but gold, as is shown by the discovery here of ornaments which differ from those of the Continent, so that we may assume that the gold itself was found here. It is remarkable, therefore, that there did not exist greater intercourse between the prehistoric peoples of Britain and the Continent.

In asking you to return to Dr. Montelius a vote of thanks, I should like to say how much it has added to our interest and pleasure this evening, that Dr. Montelius has talked to us in our own language, and with as great a facility as we do ourselves.



1. ESTLAND. $\frac{1}{4}$.



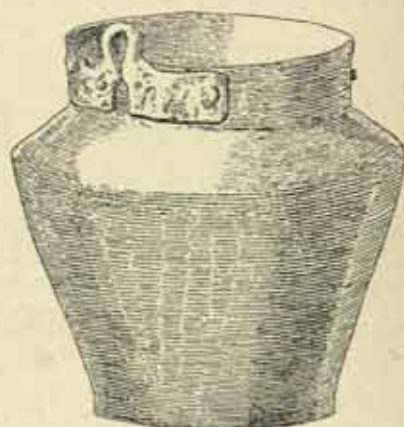
2 a. DENMARK. $\frac{1}{4}$.



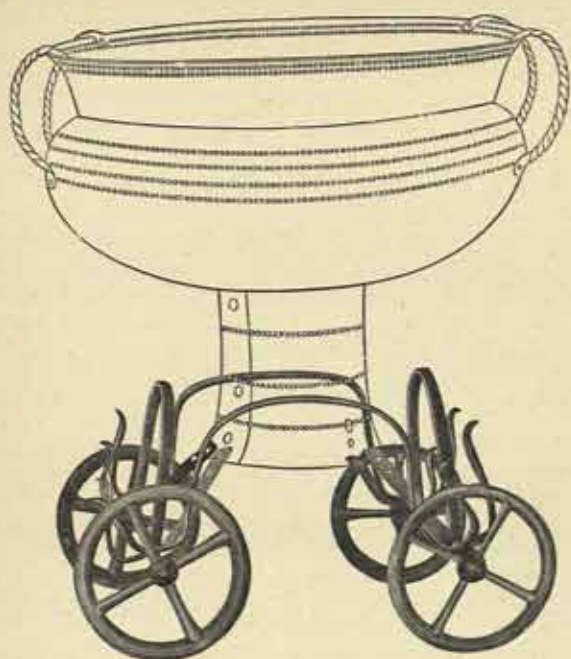
2 b. DETAIL OF FIG. 2 a.



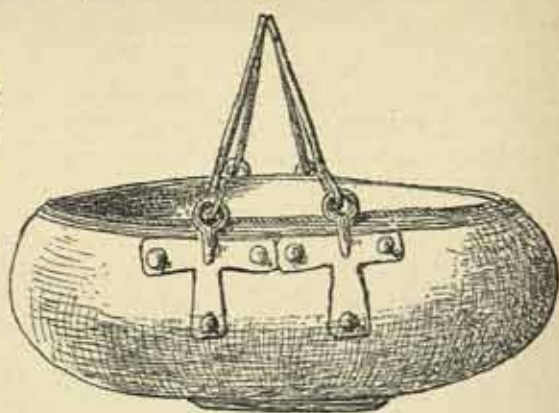
3. DENMARK. $\frac{1}{3}$.



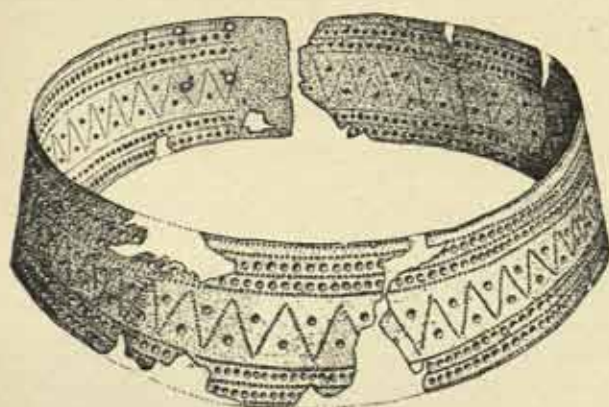
4. HANNOVER. $\frac{1}{4}$.



5. SWEDEN. $\frac{1}{5}$.



6. BRANDENBURG. $\frac{1}{4}$.



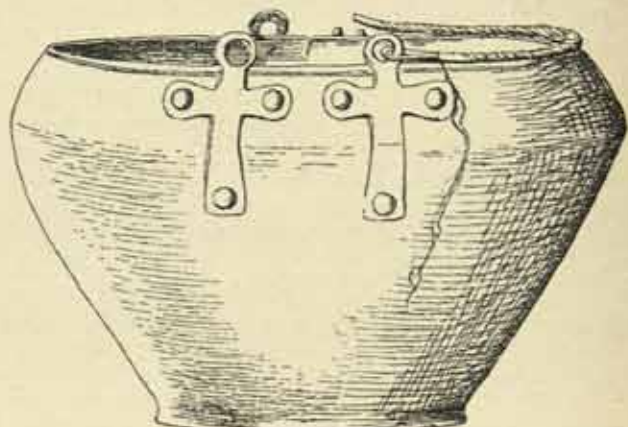
7. DENMARK. $\frac{1}{2}$.



8. DENMARK. $\frac{1}{4}$.



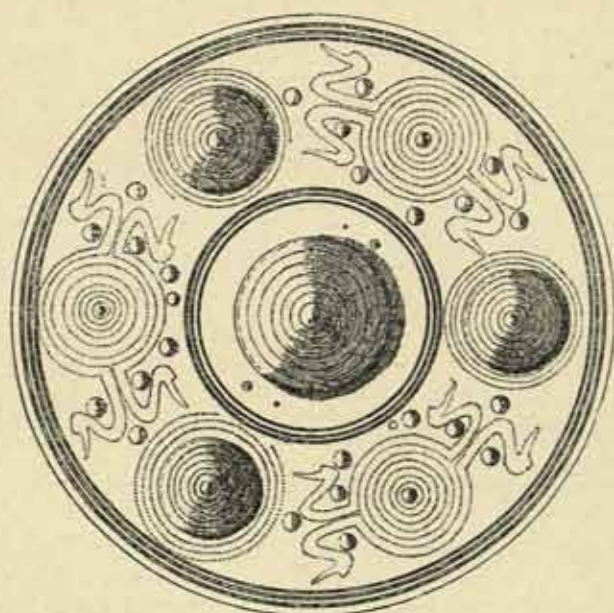
9. NEAR LÜBECK. $\frac{1}{7}$.



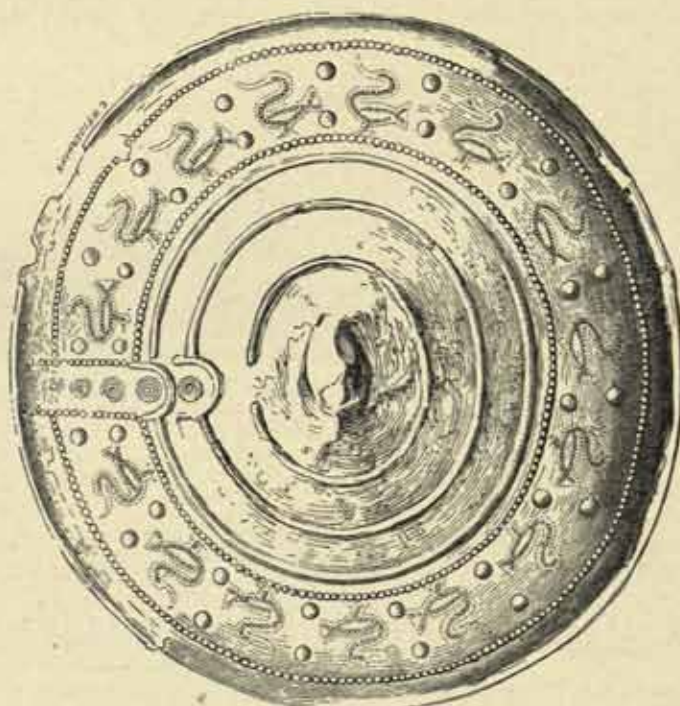
10. BRANDENBURG. $\frac{1}{4}$.



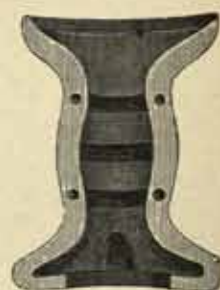
11.
SWEDEN.
 $\frac{1}{8}$.



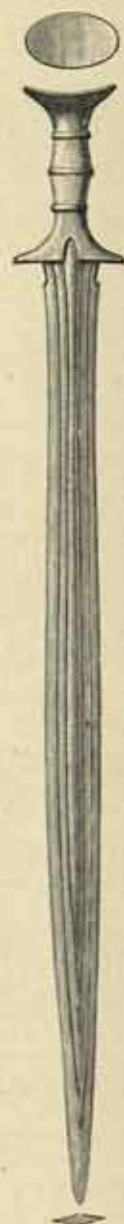
12. DENMARK. $\frac{1}{8}$.



13. SWEDEN. $\frac{1}{8}$.



14. BAVARIA.



15. FINLAND. $\frac{1}{8}$.



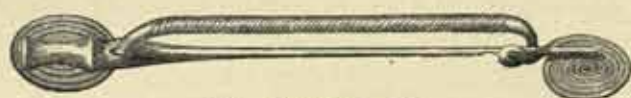
16. DENMARK. $\frac{1}{4}$.



19. DENMARK. $\frac{1}{3}$.



20. DENMARK. $\frac{1}{2}$.



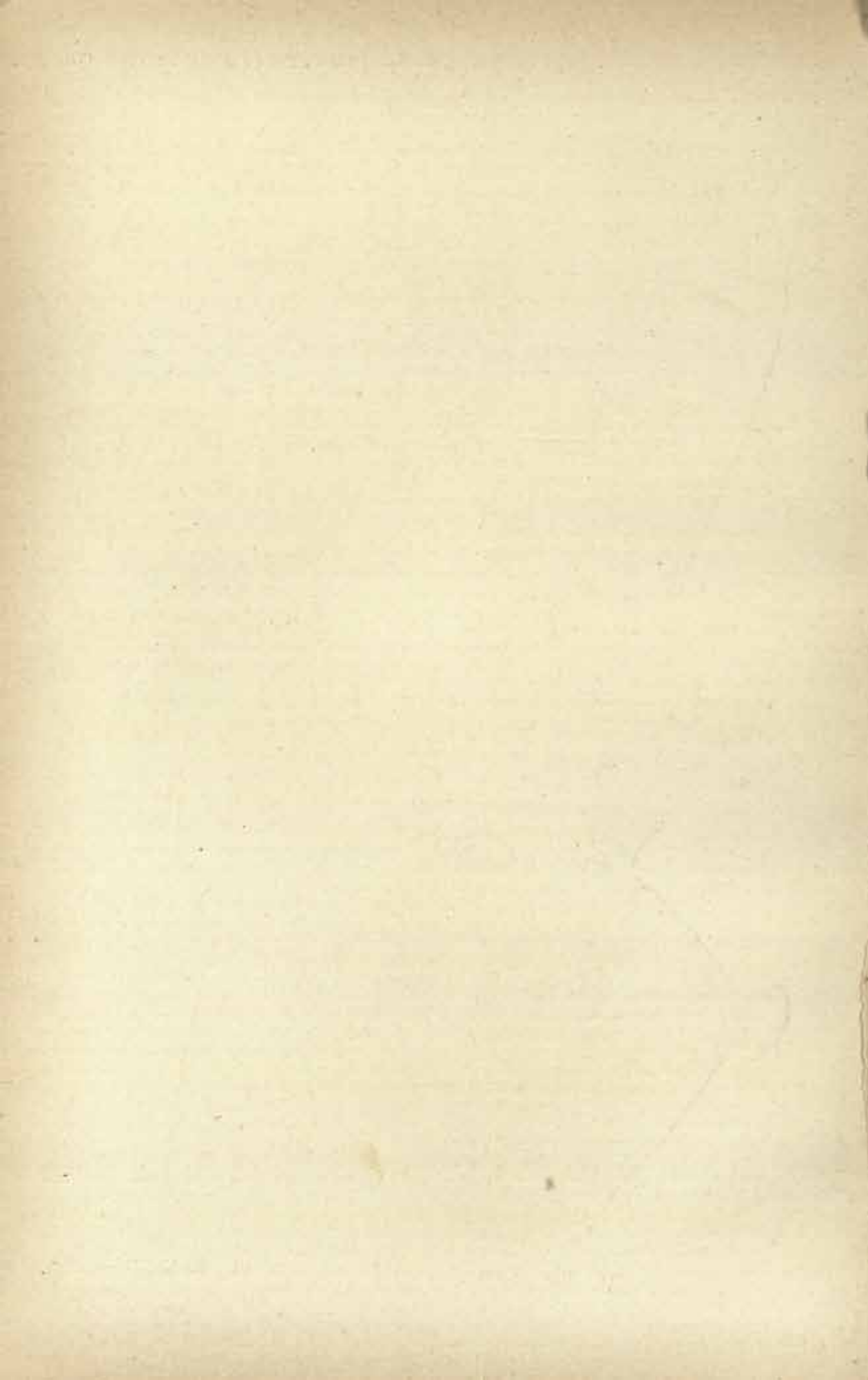
17. SWEDEN. $\frac{2}{3}$.



18. SWEDEN. $\frac{1}{4}$.



21. MECKLENBURG. $\frac{1}{3}$.



RECENT ANTHROPOMETRICAL WORK IN EGYPT.

BY DAVID MACIVER, M.A.

[PRESENTED JUNE 12TH, 1900. WITH PLATES IX AND X.]

IN the following paper, which is a *résumé* of one read before the British Association at the Dover meeting, I wish to bring forward a somewhat new experiment. This experiment is the employment of anthropometry as an aid to the solution of historical and archaeological problems. It is singular how rarely the archaeologist makes use of anthropometry, although it might be supposed that the physical characteristics of a race were not less important in determining its origin and connections than the evidence of myth, language, custom, and æsthetic production, which is so freely and often so uncritically employed.

The chief reason for the neglect to which I have referred is probably to be found in the difficulty of dating the specimens. Measurements taken from various cemeteries of different periods and in different countries are of little value if they cannot be arranged in a definite sequence of time and put into relation with one another geographically and historically. Now it is precisely in this respect that the worker in Egypt finds himself in a peculiarly favourable position; so much so, indeed, that it may be fairly claimed that Egypt is the starting-point for all anthropometrical work which aims at establishing historical connections. For, owing to the progress which has been made within the last generation, it has become possible to date accurately every cemetery which is excavated. Professor Petrie, to whom so much of this progress is due, has from the first insisted upon the importance of measuring and comparing the skulls and the bodies found; and it is as a result of the work carried out in connection with his systematic excavations that there are at the present moment available series comprising over 1,400 examples, which are divided into eight periods according to their dates, and which range almost uninterruptedly through the whole length of Egyptian history from the neolithic age to the fall of the Roman Empire.

How great an advance this represents may be judged from the fact that the catalogue of the Royal College of Surgeons enumerates only thirty specimens. These, in the absence of any proof to the contrary, may be separated from one another each by a period of two hundred years, and may belong to three or four different race stocks. And yet from such slight material has been made the attempt to deduce the type of "Ancient Egyptian."

Before proceeding to any comparison between the various series to which reference has been made, it will be well to explain the new method upon which these measurements are now being published. In publishing a large number of measurements there are two objects to be aimed at; the first is to give all possible details, the second is to give them in a form which is intelligible and expressive and which enables them to be easily worked over. These requirements are not fulfilled by the methods which are ordinarily adopted. Of those in common use, the first method is to set out all the individual specimens one after another, accompanied by a list of their measurements. This is merely flinging a note-book into print, and leaves the whole work of tabulation to be done by the reader. The other is to arrange the indices in groups and to state how many examples fall within each group. This is occasionally misleading if the groups are not made close enough to one another to show the distribution of the examples. But even at its best this arrangement destroys as much as it preserves. The identity of the specimens is lost, and it is impossible to trace combinations of characteristics. It may, for instance, be stated that, as regards the cephalic index, a certain number of the specimens are narrow-headed and a certain number broad-headed; that as regards the nasal index a certain number have slender noses and a certain number have broad noses; and so on throughout the various measurements. But there is no possible way of discovering how these features are combined in the various specimens, whether the long head accompanies the slender or the broad nose, the straight or the projecting face. The reader is entirely precluded from inquiring whether there are any general rules of combination or whether there are not. He is, in fact, presented with a series of composite photographs, isolated and incapable of being compared together.

In setting out the measurements taken at Denderah in the season of 1898, I have therefore adopted a new method, which, while it is quite simple, combines the requirements of clearness and detail. The principle adopted is that of giving, as it were, a chart of the district of measurements within which the specimens are comprised (see Plate IX).

Thus, for instance, in comparing the length and the breadth of the skull the figures giving the length are written in a vertical line at the side, and those giving the breadth are written in a horizontal line along the top or bottom. The chart is thus divided up into chessboard squares, in which the specimens are pigeon-holed, each according to its measurements. Every specimen is given a particular number by which it is denoted all through the various diagrams; this, which may be called its "name-number," is always reserved for it, so that the identity of every specimen is preserved, and it is only necessary in order to find all its measurements to look for it by its number in the several diagrams.

It will be noticed that in Plate IX the figures at the side and along the top represent not the index, but the actual dimensions in centimetres and millimetres. This is done deliberately in order to show the size of the skull as well as the ratio of its parts. For it is one of the worst points in the system

of tabulating by groups of indices that specimens of which the actual dimensions are enormously different are placed within the same index group. Thus, to quote actual examples from the prehistoric series, one specimen measures 196×143 and another 179×131 . These give an almost identical index, and according to the method which is in common use would be put down in the same group in spite of a difference of 17 millimetres in length and 12 in breadth.

Again, it happens sometimes in comparing together series of different dates that the average index has not altered, but the average absolute dimensions have greatly increased or decreased in the intervening period. It is therefore on all grounds of paramount importance to give the absolute dimensions as well as the indices.

In Plate IX the indices are shown by the diagonal lines drawn across the chessboard squares. They are arranged at regular intervals, as the irregular divisions of Broca are inconvenient. As, however, the latter are so universally known, their place is shown by the broad brackets.

Such a chart as this gives, therefore:—

- (1) The absolute length.
- (2) The absolute breadth.
- (3) The cephalic index.
- (4) The dispersion of the specimens according to their absolute measurements.
- (5) Their dispersion according to indices.

All this is done within a very small space, and at the same time the identity of every specimen is preserved.

Such charts can be used in all cases where it is desirable to compare two measurements. Where, however, it is only wished to set out one class of measurement by itself, the "name-numbers" can be utilised in another way. They are put out in a line, each opposite to the measurement to which it belongs, and if attention is paid to the spacing, the length of these lines automatically registers the frequency with which any measurement occurs. Consequently a curve drawn through the extremity of these lines will answer all the requirements of the ordinary curve of frequency (Fig. 1).

It will be remarked that some of the "name-numbers" are written not horizontally but at an angle. This denotes that such specimens are not sexed with absolute certainty; as if the bones are broken it is often impossible to be quite assured of the sex by judging from the skull alone.

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FIG. 1.—FEMUR MAX.

As a matter of practical convenience it should be stated that it is almost impossible to write the numbers sufficiently clearly to bear reproduction on a much reduced scale. It is well, therefore, to use type-printed numbers and to affix these to the paper in their places.

Tables on this model, which have been re-cast and arranged for publication by Professor Petrie, are now appearing in the "Denderah" memoir of the Egypt Exploration Fund.

Passing now to the consideration of the various series, I shall deal only with three indices, the cephalic, nasal, and alveolar, as these have been found in other cases to be those most characteristic of race divergencies. For a complete comparative study of the periods it would of course be necessary to collate all the other measurements both of the head and of the limbs, and the full material for such a study is provided in the publication of the measurements. For a broad treatment, however, these three features may suffice.

In Plate X is shown a comparison of these three indices with their fluctuations, in the different periods. The first period, both in date and in importance is the "prehistoric." In this are included all examples antecedent to the fourth dynasty. At the present moment it is impossible to more accurately subdivide the prehistoric period, although it is hoped that Professor Petrie's classification of pottery will soon enable this to be done. The period, however, certainly includes two very different civilisations, and presumably, therefore, two different race-stocks. Thus the people of the earlier prehistoric time lived in a stone age, using implements of flint; were cannibals; manufactured a pottery of unequalled beauty of form; but had no system of writing and had made little advance in the arts of drawing and carving. The people of the later prehistoric time, on the other hand, began to use implements of copper; abandoned, if not cannibalism, at any rate the burial practices which give the clearest evidence of it; and, most important of all, employed an already elaborated system of hieroglyphic writing and showed considerable skill in carving. The line of cleavage between the two is plausibly placed at the beginning of the Egyptian dynasties—that is to say, about 5000 B.C. or a little later.

There is very good reason, therefore, for presuming the presence of two very different races in the Nile valley before the age of the pyramid builders; but until the pre-dynastic and the early dynastic periods have been accurately differentiated, we can only conjecture which of the two stocks, of which the skull measurements as well as the archaeological data give an indication, was the earlier and which was the later. In attempting to establish the characteristics of the prehistoric peoples, not only the anthropometrical material but also the portraits which they have left of themselves have to be taken into consideration. Such portraits are probably in the main, if not entirely, of the early dynastic period. Some are to be seen in *Nagada and Ballas* (Petrie and Quibell, London, 1895); others will be available when Mr. Quibell publishes the results of his excavations at Hierakonpolis.

The measured specimens come from two sites, viz., Nagada (1895) and Hou¹ (1899). Both show a very strongly dolichocephalic type, the median falling as low as 721 and 718; the nose is broad, especially at Nagada, and the profile fairly straight.

It is noticeable that throughout the whole historical series, down to the end of the eighteenth dynasty, the measurements of the women are much more consistent and show much less variation than those of the men. The cephalic index of the women remains almost the same throughout the whole 4,000 years. This fact is of considerable importance in making a conjectural division of the two prehistoric peoples. That series in the males which most nearly corresponds to the typical female measurement is likely, in the absence of contradictory evidence, to be the older, and the subsequent fluctuations in the measurements of the men would be due to causes which left the original type of women almost unaltered. Thus, in considering the nasal index, it is found that the nose is much broader in the men from Nagada than in those from Hou, but it is the broader nose which corresponds more nearly to that of the women, from which I deduce that the Nagada men, so far as the nose is concerned, represent the older stock, a belief which is confirmed by the fact that this type of nose is that which is in the most extreme opposition to the slender nose of the fourth dynasty. On the other hand, the median of the female alveolar index at Hou is as high as 977; in the men from Nagada it is 960, in the men from Hou 970. Here, therefore, in spite of the dangers of the cross-division, I believe that in respect of the alveolar index it is the men from Hou that represent the older stock. In the cephalic index the males of both series practically coincide.

On the basis of this arrangement it would appear that the oldest prehistoric people were very long-headed and very broad-nosed, but had a comparatively straight profile. It has been suggested that there is a negroid strain to be observed in them, but if this be so it must be very remote, for though the nose is broad, it is not so broad as that of the negro, and the straight face of the prehistoric Egyptian is most unlike the projecting negro muzzle. It is an interesting coincidence, but probably nothing more, that the Hou series corresponds very closely in all three indices to the regrettably small series of Veddahs given in the catalogue of the Royal College of Surgeons, whose cephalic index is 711, nasal 503, alveolar 963.

The negroes, it has been remarked, cannot have been the main source of the prehistoric Egyptian stock. An European origin is improbable, for the dolichocephalic peoples of prehistoric Europe seem to resemble it in nothing but the lowness of the cephalic index. There remain as possible places of origin North-Western Africa, East Central Africa, and Asia. The race-type of East Central Africa will be presently shown to have been radically different. Asia is not an impossible provenance, but North-Western Africa seems more probable.

There is a good deal to connect the prehistoric Egyptians with North-Western Africa (see *Nagada and Ballas*). The survival amongst the Kabyles of Algeria of a

¹ More accurately described as Abadiyeh. Results not yet published.



FIG. 2.



Prehistoric Egyptian Skull

FIG. 3.



Head of Libyan Chief.

FIG. 4.

pottery almost identical with a very characteristic and peculiar form of prehistoric Egyptian pottery is especially remarkable.

Of measurements of ancient and modern Algerians there are lamentably few which can be utilised. I defer discussion of these till another occasion.

In *Nagada and Ballas* was published an extremely clever comparison between the head of a Libyan chief from the temple of Rameses III at Medinet Habu and a very typical skull from the Nagada cemetery. The heads are here reproduced (Figs. 3-4). In both is seen the same long head, straight face, and aquiline nose. The head of another Libyan chief, after Wilkinson (Fig. 2), shows the length of the head still better, as there is no headdress, and the curls of hair follow the hinder projection of the skull. This second example shows a straighter nose than that of the Libyan from Medinet Habu, and the difference corresponds to one which I observed in measuring the Hou skulls, some of which seem to have had an aquiline and others a comparatively straight nose. It is worth remarking that the Libyan chiefs wear a long side-lock like the Horus-lock of Egyptian children and princes.

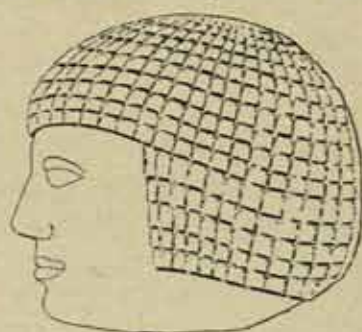
A reference to Plate X will show that at the close of the prehistoric period a most remarkable change takes place. The type of skull entirely alters. The cephalic index rises from 718 or 721 to 760, while exactly at the same time the nasal index sinks from the 530 of Nagada and 501 of Hou to 480. Such changes do not take place without a reason. There can be only one explanation, namely, that they were caused by the influx of a large number of foreigners of a homogeneous

stock. That is to say, the country was at this time invaded by a people with much less narrow heads and with much slenderer noses than their predecessors. The fact of this invasion is the most important result elicited by the comparison of these measurements. Archaeology might guess at it; anthropometry, so far as present data go, has well nigh proved it.

It must remain for the present an open question whether this invasion coincided precisely with the fourth dynasty or slightly preceded it. I am inclined to believe the latter, and if this were the case the difference in the breadth of the nose between the Nagada and the Hou series would be explained. The Hou series would already show the influence of the new arrivals. Only future work can definitely settle the question, but it seems quite probable that this notable invasion, or perhaps a first wave of the great movement, slightly preceded the fourth dynasty, and coincided with the appearance of the earliest dynastic Egyptians and the introduction of copper and hieroglyphic writing. This newly introduced type continues unchanged during the fourth and fifth dynasties, with the exception of a curious drop in the alveolar index during the fifth dynasty, and it cannot be determined whether this is an accident or a general modification until more examples of the period are available.

If, now, the Egyptian wall-paintings be consulted for races which unite the necessary characteristics of a comparatively short head, a slender nose, and a straight profile, it appears that one, and only one, answers to the description. In this case, however, the resemblance is so close as to put the identification beyond

doubt. The invaders of this period who ousted the Libyans were the people of Punt, or what we call Somali-land, including perhaps a strip of the opposite coast (see Figs. 5-6). Their features are well known from the representations of them at Deir-el-Bahri, and a comparison of the men there represented with statues of the fourth or fifth dynasty will convince any observer of the identity of the two stocks. This is not, of course, the first time that the resemblance of the Punt people to the early Egyptians has been pointed out, but it is only now, when the anthropometrical data have been brought to bear, that it has become possible to fix precisely the date of their entrance into the country.



Head of Nenkheftka, Vth Dynasty.

FIG. 5.



Man of Punt.

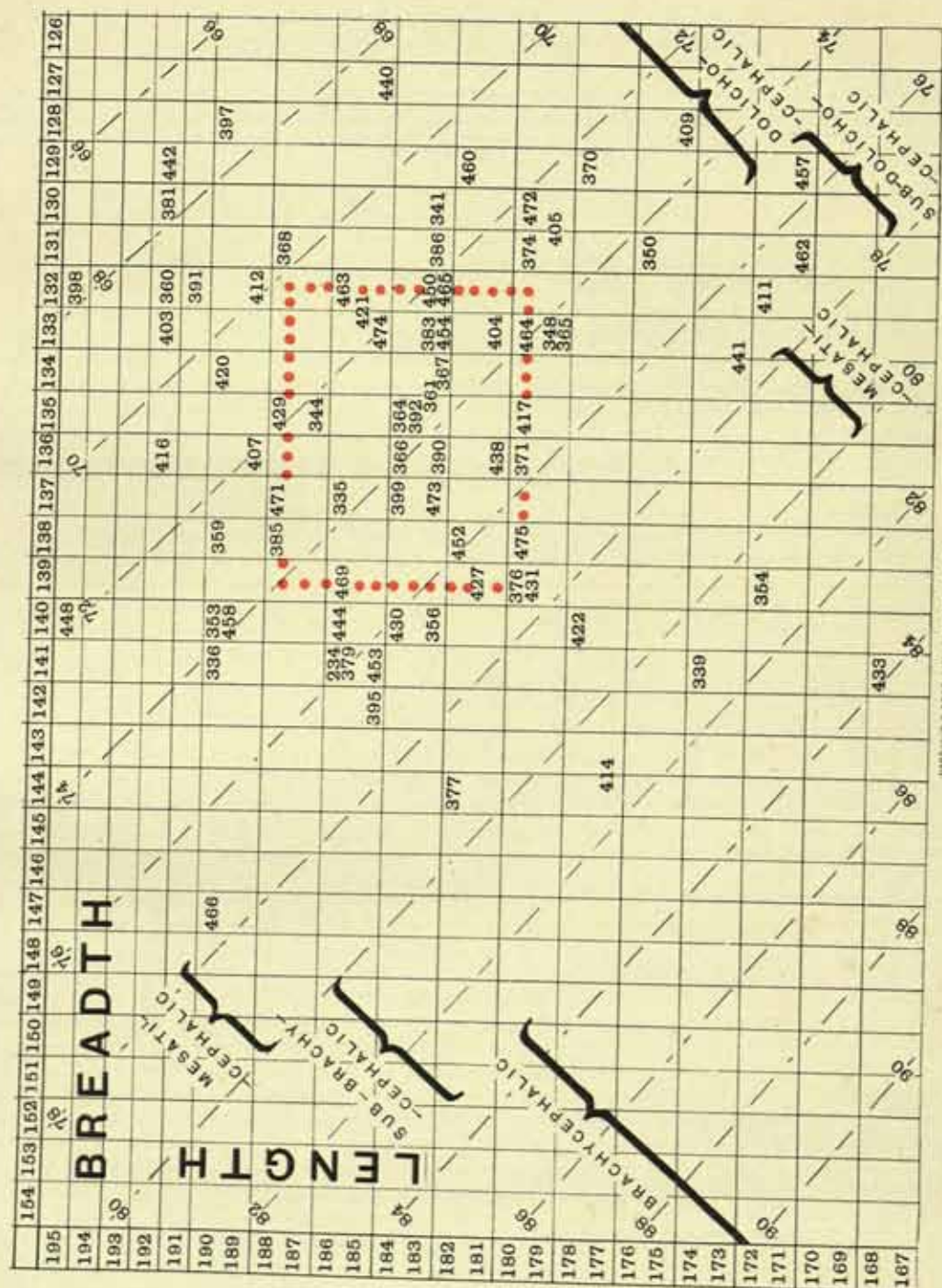
FIG. 6.

The next period, sixth to twelfth dynasties, presents a difficult problem. The measurements show a broad nose, not, indeed, as coarse as that which has been provisionally assigned to the *earlier*, but practically identical with the *later* prehistoric, accompanied by a cephalic index which is neither of the narrowest nor of the broadest headed type, but exactly half-way between the two. If the skull breadth alone were taken into account, nothing would be easier than to suppose that this is the mathematically exact result of mixing the two preceding stocks. It is with the nasal index that the difficulty arises. Should it be shown that the earlier prehistoric nose is that which prevails at Hou, there is no alternative but to suppose that the Libyan stock was very strongly reinforced by a new influx between the sixth and twelfth dynasties. This is possible in view of the discoveries made in the season of 1898-99. If, on the other hand, the opinion which has been advanced in the earlier part of this paper prove correct—viz., that it is the men of Nagada who exhibit the original type of nose peculiar to the Libyans, and that the nose as it appears at Hou is the result of an admixture of the Punt people already beginning a little *before* the fourth dynasty—then the case is altered. It would then follow that the nose of the sixth to twelfth dynasties showed a measure almost precisely half-way between the coarsest Libyan nose and the slender nose of the people of Punt. That is to say, the nasal index would give a result exactly analogous to that given by the cephalic index, and would show a compromise between the two originally so divergent types.

What, then, is to be said of the twelfth to eighteenth dynasties, where the slender nose reappears in its most extreme form? It is evident that the compromise established in the immediately preceding period has broken down, the fusion of the two types has been interrupted. The nose index sinks to 476, and the cephalic index to 730. This indicates a new disturbance, but let it be noticed that it is not due to the reinforcement of either of the already existing races. Had it been that more Libyans entered the country, the nasal index would have risen instead of falling; had it been that more Puntites came up from the south, the cephalic index would not have fallen, but would have risen as it did in the fourth dynasty. Here, therefore, it is a new people which appears; it is a third element which enters into the formation of the "Ancient Egyptian." The new people combines a head nearly as narrow as that of the Libyans with a nose as slender as that of the Puntites. They may have been allied either to the dolichocephalic races of Europe or to those of Asia. It is a very significant fact that the period of this second great invasion coincides with that historically ascribed to the Hyksos.

This, then, was the chief movement which appears in the dark period between the Middle and the New Empire. It does not, however, follow that in this troubled time there were not other race disturbances in Egypt, but it is probable that none was so strong as this, as none has left its traces so clearly marked on the anthropometrical chart.

The eighteenth dynasty itself shows some further slight modifications which

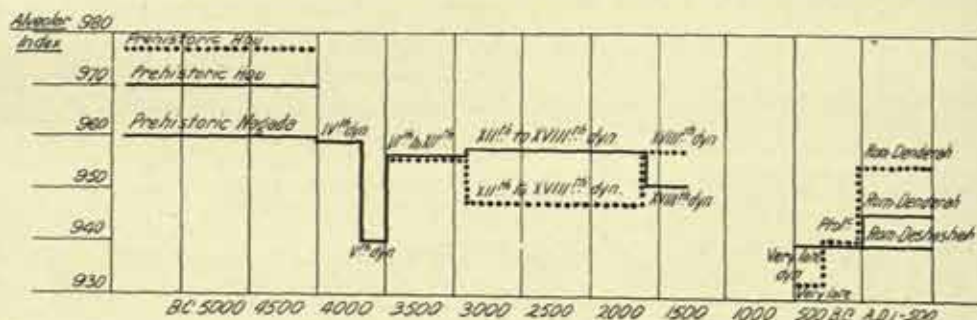
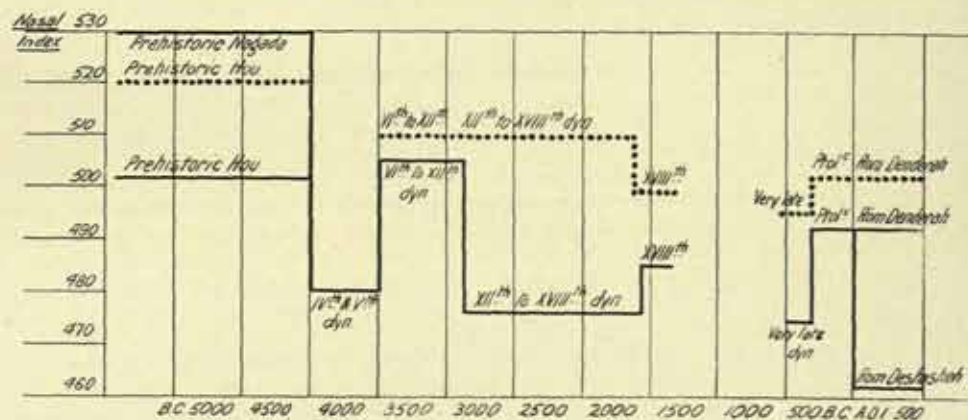
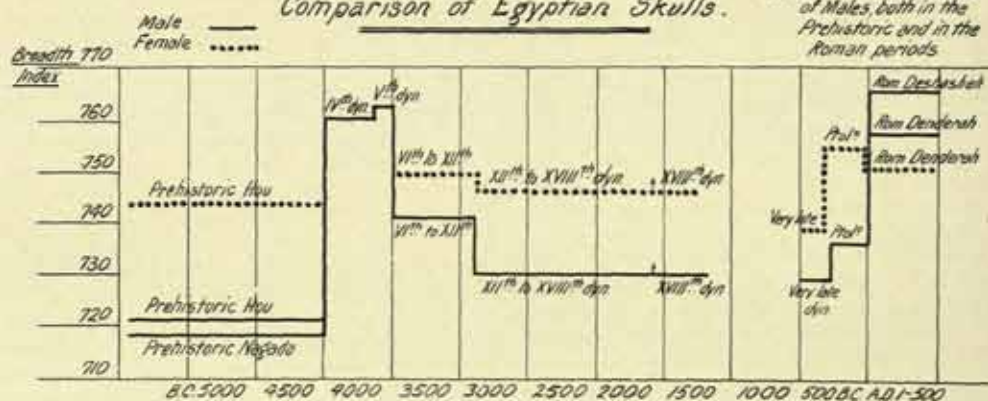


Horizontal & vertical lines 1/16 inch apart.

Diagram 3.

Comparison of Egyptian Skulls.

M.B. There are two series of Males, both in the Prehistoric and in the Roman periods



Approximate number of examples

Median as shown in the above diagrams

Prehistoric	XIX th dyn	120
Nagada	Very late dyn	32
Hou	Pharaonic	190
IV th and V th dyn	Roman	(180)
VI th to XII th dyn	Denderah	100
XIII th to XVIII th dyn	Deshasheh	180

	Breadth	Nasal	Alv.
Prof.	710	53	90
Male	721	56	97
Female	793	520	977
IV th dyn	760	98	959
VI th to XII th dyn	763	98	99
XIII th to XVIII th dyn	790	505	957
XIX th dyn	790	50	957

	Breadth	Nasal	Alv.
XIX th to XX th dyn	734	476	955
XX th dyn	741	53	948
XX th dyn	750	98	952
Very late dyn	745	423	959
Very late dyn	729	474	940
Prehistoric	738	935	933
Prehistoric	736	432	940
Prehistoric	738	502	940
Roman Denderah	757	952	947
Roman Deshasheh	760	462	94
Roman Denderah	748	502	957

may be plausibly attributed to the close connection with Syria and to the Syrian marriages then so fashionable.

After the eighteenth dynasty there is a gap in the series not greatly to be deplored, as this period of constant foreign interference or domination by various aliens would probably do nothing but confuse the argument. When the measurements are again observable, about 500 B.C., they show little change beyond a slight straightening of the profile indicated by the fall in the alveolar index.

The measurements of the Ptolemaic and Roman periods give results of exactly the kind which would be expected from the known history of the times. The influx of people from all round the Mediterranean, the employment of Gallic mercenaries, the foundation of Greek colonies such as Ptolemais, and the quartering in the country of numerous Roman garrisons lead to a chaos of types from which only one point clearly emerges, and that is a noticeable broadening of the skull as compared with the dolichocephalic forms prevailing just before.

To recapitulate, therefore, the examination of these measurements leads us to consider that the country was, when it first comes under our notice, held by Libyans with very long heads and very broad noses. These are supplanted probably rather before the fourth dynasty by the Puntites, with heads which are much broader and noses which are much slenderer. From the sixth to the twelfth dynasties ensues a period of fusion, or rather perhaps a mixture, of these two stocks. Between the twelfth and eighteenth dynasties occurs an invasion by a people not hitherto observed, having narrow heads combined with fine noses. This brings us almost to the close of Egypt's independent existence, and the succeeding modifications of the physical type do not explain history, but are explained by it.

I hope that this superficial review of an enormous mass of material may convince the reader that anthropometry can render very real service to archaeology alike by suggesting new facts and by confirming old theories.

What is needed now that these series of measurements have been made in Egypt is that those who are excavating or intend to excavate in Mesopotamia, in Syria, in Greece, and in all countries which have had a geographical or historical connection with Egypt, should collect similar material. The comparisons which it would then be possible to make would, I am convinced, result in throwing much fresh light on these most ancient civilisations in cases where unaided archaeology is powerless.

THE PHYSICAL CHARACTERISTICS OF ADULTS AND SCHOOL CHILDREN IN EAST ABERDEENSHIRE

BY JOHN GRAY, B.Sc., AND JAMES F. TOCHER, F.L.C.

[READ JUNE 12TH, 1900. WITH PLATES XI TO XVI.]

IN 1895 it was suggested by one of the authors (J. Gray) to the officials of the Buchan Field Club that they should undertake an ethnographical survey of their district. The suggestion was enthusiastically taken up, and a meeting was called to explain the *modus operandi*, and the objects of the survey.

It was resolved at the meeting to commence operations at the Mintlaw Gathering, an annual open-air function where some thousands of people from the surrounding district come together for sports, dancing, and other national amusements. Mintlaw, where the observations were made, lies near the centre of Buchan, one of the ancient divisions of Scotland. The dialect spoken by the rural population, at the present day, is a species of Lowland Scotch. Gaelic, no doubt, was spoken at one time in the district, but probably not within the last six hundred years. Previous to the thirteenth century the earls or mormaers were Pictish; at least so it is recorded in the Book of Deer, and the evidence is strengthened by the existence in early times of succession through the female. The people who attend the Mintlaw Gathering belong almost exclusively to the agricultural labouring or farm servant class.

The plan of operations decided upon, was to note the colour of the hair and eyes, and the shape of the nose of all persons as they entered the grounds. A tent was also erected in the grounds where measurements were made of all persons who chose to come. At the gate an enclosure was erected for the accommodation of the Club. It was divided into four compartments, within which were stationed eight members of the Club, two in each compartment, an observer and a recorder. The observers noted the colour of the hair and eyes, and the shape of the nose of adults as they purchased tickets at the entrance and passed the divisions between the compartments.

At the gate, 2,309 males and 551 females were observed. In the tent 169 male adults were measured and noted as to pigmentation, etc. (Group I.)

The success which attended our efforts at the Mintlaw Gathering induced us to attempt a pigmentation survey of the whole of the school children in the district. One of the authors (J. F. Tocher) proceeded to interview teachers in

various districts and found them all highly interested in the proposed work, and ready and willing to co-operate so as to make a complete and accurate set of observations. On the 31st October, 1895, sheets and a circular letter were issued to over ninety schools, enclosing a packet containing specimens of hair for guidance in referring to the nearest standard shade. Each packet contained a typical specimen of red, fair, brown, and dark hair. At a meeting of the teachers, a short paper was read (by J. F. Tocher) explaining the objects and value of the survey, and a case containing artificial eyes, intended to show the different varieties of dark, medium, and light, was exhibited; fourteen tubes containing varieties of the four standard shades of hair colour found in the district were also exhibited.

Early in 1896 returns began to come in, and by the end of the year the survey of 75 schools had been completed; the last of the returns had come in by the end of November, 1897. Altogether observations were made in and returns sent from 93 schools, covering 30 parishes, embracing the pigmentation statistics of 14,561 children—7,717 boys and 6,844 girls.

After the Mintlaw Gathering, the adult survey was also continued. Instruments were supplied to several members of the Club, who had kindly consented to measure people in their neighbourhood as opportunity offered. A considerable number of working men and fishermen were measured by one of the authors (J. F. Tocher) in Peterhead. Rural people and fishermen were measured at Lonmay by the Rev. J. Forrest; and rural people were measured at Ellon by Mr. D. Cameron. The total number in this last batch was 195 of the rural population (Group II) and 38 fishermen (Group III). We regret that up to the present we have not got a larger number of the fishing population, because this class does not intermarry with the rural population, and interesting results due to this isolation might have been deduced. The small number we have got show, as will be seen, considerable differences in their physical characteristics, a result which may or may not be confirmed by the examination of larger numbers.

PIGMENTATION.

We propose in the first place to deal with the pigmentation statistics.

The question of the standards of colour employed in making observation is a matter of the greatest importance. Unfortunately there has hitherto been a great want of uniformity in the standards employed in different countries and by different observers. The tables on pp. 106-7 have been drawn up to show the relations between the schemes of Virchow and Beddoe, and that which we have employed in our observations. We have also added a standard which, as a result of experience, we would propose for future observations, with the view of making statistics obtained more completely comparable with the very extensive statistics that have been collected on the Continent.

Under Virchow's scheme, the statistics of nearly 10,000,000 children have been collected in Germany, Austria, and Switzerland; while under Beddoe's some thousands of observations, chiefly on adults, have been made in this country; yet

STANDARDS OF COLOUR—EYES

Names of Colours.	VIRCHOW. GERMANY, AUSTRIA, and SWITZERLAND.	BEDDOE.		BUCHAN FIELD CLUB (GRAY & TOCHER).	Proposed Standard.
LIGHT.	PURE BLUE.	LIGHT.	Blue (all).	Blue.	Blue (all).
			Bluish gray.	Bluish gray.	Bluish gray.
			Light gray.	Light gray. Very light green. Very light brown.	Light gray.
	GRAY.	NEUTRAL.	Very light hazel. Yellow and green. Dark gray. Brownish gray and all uncertain colours.	Dark gray. Orange and gray. Greenish.	Very light hazel. Yellow and green. Dark gray. Brownish gray and all uncertain colours. Same as Beddoe.
BROWN.	Brown.	DARK.	Brown.	Brown	Brown.
			Dark hazel.	to	Dark hazel.
	Black.		Black.	Black.	Black. Same as Beddoe.
Number of Observations.	9,468,937 children.			14,551 children.	

we shall see that at the light end of the hair and especially of the eye colours it is impossible to establish any exact equation between them.

The horizontal lines in the tables are intended to define as exactly as possible the limits of the categories in each scheme.

Virchow divides all eyes, first, into two departments, blue (or light) and brown; and then subdivides blue eyes into pure blue and grey, and brown into brown and black. In effect, Virchow has three categories for eyes, namely, pure blue, grey, and brown.

Beddoe has three categories for eyes; light, neutral, and dark. Beddoe's light category is larger than Virchow's pure blue since it includes light grey. Beddoe's dark category is identical with Virchow's brown. The categories which we have hitherto employed for eyes, are practically identical with those of Beddoe's. In any future observations in this country, it appears to us to be desirable that the statistics should be comparable both with the results obtained on the Continen

STANDARDS OF COLOUR—HAIR.

Names of Colours.	VIRCHOW. GERMANY, AUSTRIA, and BELGIUM.	BEDDOE and BRITISH ASSOCIA- TION.	BUCHAN FIELD CLUB (GRAY & TOCHER).	Proposed Standard.
BLOND.	Light yellow. Whitish yellow. Ash blond grayish yellow. gray brownish. Light brownish. Red blond.	FLAXEN. Yellow. Golden. Light browns. Pale auburns (with red incon- spicuous).	White. Flaxen. Yellow.	Flaxen. Yellow. Golden. Light browns. Pale auburns (with red incon- spicuous). Same as Beddoe.
RED.	Fiery red.	RED. All shades of red which approach more nearly to red than to brown, yellow, or flaxen.	Auburn. All shades of red.	All shades of red which approach more nearly to red than to brown, yellow, or flaxen. Same as Beddoe.
BROWN.	Brown. Dark brown.	BROWN. Numerous shades of brown answer- ing nearly to French, <i>chatain</i> & <i>chatain clair</i> .	Medium shades. Chestnut. Dark brown.	All browns. up to
		DARK. French <i>brun</i> , dark- est <i>chatain</i> up to		
		NIGER.	DARK.	DARK.
BLACK.	Jet black.	Darkest brown. Jet black.	Darkest brown. Jet black.	Darkest brown. Jet black.
Number of Observations.	10,077,635 children.		14,561 children.	

and with those obtained by Beddoe and others in the British Isles. This we think could be done by the slight modification of subdividing Beddoe's light category into pure blue and light grey. In the last column of the table of eye colours we show the classification which we propose to meet the requirement of being comparable both with Beddoe's and Virchow's schemes.

The differences in the hair-colour standards that have been extensively used are perhaps not of such essential importance as those in the eye-colour standards. Virchow's red category is somewhat narrower than that which has been adopted in this country, since he includes in this category only what he calls "fiery red"

(*brandroth*) hair. His brown category includes Beddow's brown and dark categories, and his black is smaller than Beddow's *Niger*, since it does not include darkest brown.

We have adopted practically the same standard as Beddow and the British Association, except that we have amalgamated Beddow's brown and dark into one category, brown. It seemed to us that it was unnecessary to distinguish between shades of brown in a preliminary survey carried out by a large number of different individuals, since very fine distinctions of colours would be worthless owing to the unavoidable errors introduced by the personal equation. The standard, therefore, which we would propose for future observations is practically the same as Beddow's with the difference mentioned above. The standard is comparable with Virchow's except in the case of red; and Virchow himself admits that the statistics of red hair which he obtained in Germany are untrustworthy.

The method of making the observations of adults at the gate, of Mintlaw Gathering, has already been described. The numbers and percentages of complete combinations of the three features observed are given in the printed report of the Ethnographical Survey of Buchan (*Transactions of the Buchan Field Club*, 1895, Tables I, II, III, pp. 18-20). In these tables the persons observed are classified in the first place according to the colour of hair. Each hair colour is then subdivided among the eyes according to the colour of eye possessed by each, and further subdivided in the nose division (A). Column nose (B) represents the hair and nose combinations (including eyes), *e.g.*, in Table II (A) there were 35 females who possessed red hair, and of these, 10 had dark eyes, 12 had medium eyes, and 13 light eyes. Of the 10 who had red hair and dark eyes, 1 had a straight nose, 8 had concave noses, and 1 a wavy nose. Of the 12 who had red hair and medium eyes, 6 had straight noses, 3 concave, and 3 Roman. Of the 13 who had red hair and light eyes, 5 had straight noses, 7 concave, and 1 Roman. Leaving the eyes out of account, there were 35 females with red hair, 12 of whom had straight noses, 18 concave, 4 Roman, and 1 wavy.

The percentages for females and males separately, and for both together, as may be seen in these tables, are as follows:—

			Hair.				Eyes.		
			Fair.	Red.	Brown.	Dark.	Light.	Medium.	Dark.
Females	...	...	9.8	6.4	54.8	29	21.6	39	39.4
Males	...	...	9.5	5.6	66.2	18.7	26.3	50.9	22.8
Total	...	...	9.5	5.7	64.1	20.7	25.4	48.6	26.0

These figures show that there is a greater percentage of dark hair among females than among males, and also a greater percentage of dark eyes.

This fact is interesting, and has been observed also among the Jews, and in regions like Alsace, where a blonde race has invaded a brunette country (see Ripley's *Races of Europe*). Karl Pearson has shown by the analysis of statistics that the hereditary resemblance between ancestors and descendants in the female line, or in the male line, is much greater than between ancestors and descendants of opposite sexes. The above statistics therefore point to an invasion by blonde males of a district with an aboriginal brunette population, and confirm Ripley's hypothesis.

If we examine the combinations of hair and eyes among the 2,309 males observed, we find 67 per cent. of fair-haired persons have light eyes, and only 6 per cent. dark eyes. But of dark-haired persons only 13 per cent. have light eyes, and 50 per cent. have dark eyes. Red and brown-haired persons occupy intermediate positions as shown by the following table:—

Hair.	Eyes.		
	Light.	Medium.	Dark.
Fair	67.7	25.9	6.4
Red	53.8	37	9.2
Brown	21.9	59.5	18.6
Dark	13	37	50

This appears to us to show that the natural order of hair colours is fair, red, brown, and dark; and not red, fair, brown, and dark as adopted by Beddoe.

The following table gives the combinations (in percentages of the whole population) of hair and eye colours of the rural population (2,860 males and females) observed at the gate at Mintlaw:—

Hair.	Eyes.			
	Light.	Medium.	Dark.	Total.
Fair	6	3	—	9
Red	3	2	1	6
Brown	14	37	13	64
Dark	2	7	12	21
Total	25	49	27	100

The following table gives the combinations (in percentages of the whole population) of hair and eye colours of the agricultural labourers (males) observed in the tent at Mintlaw (Group I)¹ :—

Hair,	Eyes.			
	Light.	Medium.	Dark.	Total.
Fair	10	8	—	18
Red	2	—	—	2
Brown	21	15	4	40
Dark	2	23	15	40
Total	35	46	19	100

The following tables give the combinations for (a) the mixed town and rural population (Group II); (b) for the fishermen (Group III) :—

A. Mixed town and rural : Group II.

Hair.	Eyes.			
	Light.	Medium.	Dark.	Total.
Fair	13	4	3	20
Red	1	—	1	2
Brown	10	8	7	25
Dark	14	21	18	53
Total	38	33	29	100

B. Fishermen : Group III.

Hair.	Eyes.			
	Light.	Medium.	Dark.	Total.
Fair	8	—	—	8
Red	3	—	—	3
Brown	26	5	11	42
Dark	16	13	18	47
Total	53	18	29	100

¹ The complete statistics of Groups I, II, III are to be published in the *Transactions of the Bechan Field Club*, vol. V, Part iii, 1900.

The following table gives the combinations of the 14,561 school children :—

Hair.	Eyes.			
	Light.	Medium.	Dark.	Total.
Fair	15	8	2	25
Red	4	2	1	7
Brown	18	19	10	47
Dark	4	6	11	21
Total	41	35	24	100

An inspection of these tables shows that there are considerable differences in the percentages of the combinations even among the three groups of the adult rural and town population; the fishermen and school children show still greater deviations.

In order to compare accurately the different groups it is necessary to devise some method of finding the mean pigmentation. The method we have adopted will be explained by the help of the diagram on p. 112. This diagram contains twelve squares of equal size representing all the combinations of hair and eye colour arranged as in the tables given above. The percentage marked in each square is supposed to represent a weight placed at the centre of the square. The centre of gravity of all these imaginary weights, *i.e.*, the point on which a thin plate without weight loaded in this way would balance, is then found, by well-known methods. This centre we propose to call the centre of pigmentation.

To find the co-ordinates of the centre of pigmentation let us take as an example the school children, denoted by C in the diagram. To find x take moments about OY, add them together and divide by 100.

$$\begin{aligned}
 x &= \frac{41 \times \frac{1}{2} + 35 \times 1\frac{1}{2} + 24 \times 2\frac{1}{2}}{100} \\
 &= \frac{20.5 + 52.5 + 60}{100} \\
 &= 1.33 \text{ or simply } 133
 \end{aligned}$$

This latter number gives the distance of the centre C from the line OY, the side of a square being taken as 100 units.

$$\begin{aligned}
 y &= \frac{21 \times \frac{1}{2} + 47 \times 1\frac{1}{2} + 7 \times 2\frac{1}{2} + 25 \times 3\frac{1}{2}}{100} \\
 &= \frac{10.5 + 70.5 + 17.5 + 87.5}{100} \\
 &= 1.86 \text{ or simply } 186
 \end{aligned}$$

PIGMENTATION. ABERDEENSHIRE, E.

Y

Eyes.

Hair.

		L	M	D	
F	C	15	8	2	25
	I	10	8		18
	II	13	4	3	20
	III	8			8
	M	6	3		9
R	C	4	2	1	7
	I	2			2
	II	1		1	2
	III	3			3
	M	3	2	1	6
B	C	18	C ○ 19	10	47
	I	21	I ○ 15	4	40
	II	10	II ○ 8	7	25
	III	26	III ○ 5	11	42
	M	14	M ○ 37	13	64
D	C	4	6	11	21
	I	2	23	15	40
	II	14	21	18	53
	III	16	13	18	47
	M	2	7	12	21
		C. 41. M. 25 I. 35, II. 38, III. 53.	C. 35. M. 49. I. 46, II. 33, III. 18.	C. 24. M. 26 I. 19, II. 29, III. 29	

O

X

This gives the distance of centre C from the line OX, and the position of the point C is completely determined.

On the diagram are marked the positions of the centre of pigmentation for the school children (C); the adults in Group I (I); the adults in Group II (II); the adults at Mintlaw gate (M); the fishermen (III).

We note that (C) lies nearer the fair hair than the centres of the adults. The three groups of rural and town adults have centres (I) (II) and (M) lying fairly close together: the centre (III) of the fishermen shows that they are darker in hair and lighter in eyes than the rural population.

Assuming that the intermediate colours brown and red are due to the admixture of absolutely fair and dark hair, then by means of the centre of pigmentation we may calculate the original percentages of fair and dark hair which would produce the existing colours. We do this by supposing that all the hair is fair and dark, and finding the percentages that would give the same centre of pigmentation. These quantities will be inversely proportional to the distances of the centres of the fair and dark hair from the centre of pigmentation. Thus to find the quantities of fair and dark hair equivalent to the actual hair colours of the school children, the following formula is used:—

$$\begin{aligned}\text{Light hair} &= \frac{186 - 50}{3} \\ &= 45 \text{ per cent.} \\ \text{Dark hair} &= 100 - 45 = 55 \text{ per cent.} \\ \text{Dark eyes} &= \frac{133 - 50}{2} \\ &= 41 \text{ per cent.} \\ \text{Light eyes} &= 100 - 41 = 59 \text{ per cent.}\end{aligned}$$

These numbers do not pretend to be absolute, but they are relatively correct and enable the pigmentation of one population to be compared correctly with that of another. Indeed no method has yet been devised of measuring the absolute pigmentation of hair or eyes. Even if the exact tint was measured by a scientifically designed instrument, it is doubtful whether the amount of pigment obtained by chemical analysis would correspond to these tints.

Our results appear to show that the mean pigmentation of a district when taken from a large number of persons is very constant; when taken over small numbers it is extremely variable, as the maps prepared from the school children show.

A summary of the results obtained at each school and in each parish is given in Table III of the report already quoted (*Trans. Buchan Field Club*, 1897, pp. 7-16). The results are represented in the series of Maps III to XI accompanying this paper (Plates XI, XII); a key map XII being also given.

Map I representing the brunette type in the British Isles after Beddoe, shows Aberdeenshire as one of the least brunette districts. Our results show it as very considerably more brunette than North Germany, where we have only about 7 per cent. of the brunette type. This method of estimating the pigmentation would therefore lead us to the conclusion that the percentage of North German blondes in our population is very small.

Map II shows the distribution of the brunette type on the Continent. The map is drawn to the same scale and is adapted from a map in Ripley's *Races of Europe*. Some parts of Buchan are really darker than anything on the continental map, but this only shows how great the local variations in pigmentation are. It also shows how unreliable small samples are when used to determine the mean pigmentation of a district. The average of the brunette type in Buchan is 20 per cent. This corresponds in Germany most nearly to Upper Bavaria, which is 24 per cent. Belgium, however, has a rather higher percentage of the brunette type than Buchan.

Map III shows the distribution of the brunette type. This type is made up of persons having brown eyes and dark or brown hair. It corresponds almost exactly with Virchow's brunette type, and is therefore valuable for comparison with the results obtained from school children on the Continent. The greatest density of the brunette type is found on the coast at Slains and Aberdour, at both of which places are rocky and inaccessible coasts. East of Fraserburgh the density is lowest on the coast, and here the coast is low and sandy and therefore more likely to be the landing place for blonde invaders from Scandinavia.

Map IV shows the distribution of the mixed blonde type, that is of persons with fair hair and light eyes. Virchow's blonde type contains only persons with blonde hair and blue eyes, and is therefore more restricted than our blonde type, and cannot be compared with it, as we have no means of ascertaining the percentage of pure blue eyes among our light eyes.

Map V shows the distribution of dark hair. As in the case of the brunette type the greatest density is on the most inaccessible parts of the coast.

Map VI shows the distribution of red hair. This lies mainly in two parallel bands running inland from the coast. Roughly speaking, these bands lie between maximum blonde and brunette regions. We have made several attempts to discover the connection between red hair and other hair colours, but without very much success. The best result has been got by dividing the whole district into six nearly equal divisions and finding the mean density of the hair colours in each division. It is found that the red hair is highest where the dark hair is lowest in percentage and *vice versa*. It is also found that the same relation holds between fair and brown hair.

Maps VII and VIII show the distribution of fair hair and brown hair; and Maps IX, X, and XI show the distribution of the three colours of eyes.

These maps have been drawn by means of a kind of contour lines of

pigmentation. The percentage at each school has been looked upon as a height, and contour lines have been drawn with reference to these points. This was considered more accurate than taking the average for parishes, the boundaries of which are purely artificial lines, having no relation to the distribution of the population.

An inspection of the adjacent table will show the difference between the pigmentation of children and adults.

Survey.	Hair.				Eyes.		
	Red.	Fair.	Brown.	Dark.	Dark.	Medium.	Light.
Children	7.0	25.3	46.5	21.2	24	35	41
(1) Boys	6.8	23.6	48.2	21.4	22.6	35.8	41.6
(2) Girls	7.3	26.9	44.7	21.1	25.6	33.8	40.6
Adults (<i>Mintlaw</i>) ...	5.7	9.5	64.1	20.7	26.0	48.6	25.4
(1) Males	5.6	9.5	66.2	18.7	22.8	50.9	26.3
(2) Females	6.4	9.8	54.8	29.0	39.4	39.0	21.6

It will be observed that there are about $15\frac{1}{2}$ per cent. more fair-haired children than fair-haired adults; and $17\frac{1}{2}$ per cent. less brown-haired children than brown-haired adults. This points to the conclusion that 15 to 16 per cent. of the whole population are transferred from the fair to the brown category in passing from childhood to adult age. It is interesting to find that Virchow estimates that the increase of brown among adults in Germany is 15 per cent.

The table also shows that between boys and girls the percentage of dark hair is practically equal, and the girls have only 3 per cent. excess of dark eyes; but adult females have 11 per cent. more dark hair than adult males, and $16\frac{1}{2}$ per cent. more dark eyes. The darkening of the females is therefore post-natal; and this circumstance may affect the conclusions which we have previously drawn as to the pigmentation of the aboriginal population.

If a population is due to the intermixture of pure blondes and pure brunettes one would expect to find even after many generations the number of heads of fair hair about equal to the pairs of blue or light eyes, except there was some influence that prevented them multiplying at the same rate. We do not, however, find the percentages equal, either here or in Germany. The following table shows the percentages in North Germany, where the Anglo-Saxons are supposed to have come from, and in East Aberdeenshire:—

—				Fair hair.	Light eyes.	Brown ¹ hair.	Brown eyes.
Schleswig-Holstein	...	...	...	82	50	18	16
Lüneburg...	...	...	...	83	49	17	18
Mecklenburg-Schwerin	...	...	...	77	49	23	21
East Aberdeenshire	...	...	...	25	41	68	24

In these northern districts of Germany there is always more fair hair than light (blue) eyes, while in East Aberdeenshire the reverse is the case. This might be explained by the fact that our light eyes category is larger than Virchow's blue. But that will not explain the similar discrepancy between the percentages of brown² hair and brown eyes. One possible explanation of the discrepancy is that the immigrants from Germany were not pure blondes, but of a mixed variety with brown hair and blue eyes.

The excess of brown hair over brown eyes is still greater in the case of adults: for instance at the Mintlaw gate we found 85 per cent. brown hair and only 26 per cent. brown (or dark) eyes; and Groups I, II, and III show the same peculiarity, as may be seen by looking at the Pigmentation diagram.

It is interesting to compare the pigmentation of the towns in the district, namely, Peterhead and Fraserburgh, with the average pigmentation of the district. Peterhead, the largest town, is almost exactly the mean of the whole district; Fraserburgh is slightly more blonde, no doubt owing to the proximity of a blonde area on the east.

MEASUREMENTS.

The measurements taken in each case were the height standing, the height sitting; the maximum length and maximum breadth of the head. At the same time a note was made of the colour of the hair and eyes and the profile of the nose. It was also ascertained whether the person himself belonged to the district, or had ancestors who belonged to the district; all aliens were included. The surname of each person was also noted. The measurements of the head were taken in millimetres; the measurements of stature in feet and inches, the equivalents of which in millimetres have been added to the tables.

Table I contains a record of 169 persons, mostly agricultural labourers, measured in the tent at Mintlaw (Group I).

Table II contains a record of 195 persons measured by three different observers. About half of this group were townsmen of Peterhead belonging to the working class. The rest belonged to the rural population (Group II).

¹ "Brown" here includes our categories of "brown" and "black."

² *Brown* here is taken in Virchow's sense, and is practically equal to our *brown* and *dark*.

Table III contains a record of 38 fishermen from the fishing villages on the coasts of Peterhead and Loumay (Group III).

These tables are to be published in full in the *Transactions of the Buchan Field Club*.

Head measurements.—The method we have adopted to analyse the statistics of head measurements is to plot them out on what may be called a Cephalic Chart. The chart is constructed by dividing a sheet of paper into small squares by a number of equidistant horizontal and vertical lines, the distance between two adjacent lines representing a millimetre. Numbers in millimetres are printed opposite the ends of the spaces between the horizontal and vertical lines. To mark on this chart the position of a head, the length and breadth of the head are used as co-ordinates, the length being measured horizontally and the breadth vertically on the chart. The square determined by the co-ordinates being found, a mark is made therein. Straight lines have been drawn at an angle to the co-ordinates to represent equal cephalic indices, and by means of these the cephalic index of any head plotted on the chart can be determined by inspection. Curved lines (portions of rectangular hyperbolas) have been drawn to represent equal products of length and breadth, or approximately equal areas or volumes. These area factors will be found to be much more efficacious in showing the racial elements of the population we have to deal with in the British Isles than cephalic indexes, since these elements differ very little in cephalic index, but very considerably in area. It may be stated otherwise by saying that the variability of the cephalic index is much less than the variability of the area factors.

Chart I represents the head measurements in Table I, plotted out in the way described above. (Plate XIII.)

Chart II represents the head measurements in Table II. (Plate XIV.)

Chart III represents the head measurements in Table III. (Plate XV.)

Chart IV represents a number of Highlanders measured by Beddoe (*Races of Britain*, p. 234), and is introduced to enable a comparison to be made between the population of the East and West Coasts of Scotland. (Plate XVI.)

On the left hand side of each chart a frequency diagram of breadths is drawn. It forms a kind of projection of the group on a vertical line.

At the bottom of each chart a frequency diagram of lengths is projected in the same way.

In Chart I there are well marked peaks in the breadth diagram at 150 mm. and 155 mm. There are three peaks on the length diagram at 190 mm., 192 mm., and 195 mm. The superficial distribution on the chart enables us to determine which of these lengths and breadths are associated together in the same persons. Points of fairly well-defined maximum frequency occur on the chart at 155, 195; 150, 192; 150, 195.

These peaks may be due to the circumstance that the number of persons dealt with is too small, and the gaps may be filled up when a much larger number of persons is taken.

There would be a strong presumption, however, that these peaks really represent racial elements if they appeared in a chart of another group of people from the same district. In Chart II we have the distribution of a group from the same district, the only difference being that there are a considerable number of townspeople in this second group. Chart II shows in the length diagram the same three peaks at 190, 192, and 195; one of the peaks in the breadth diagram at 150 is also well marked; the peak at 155 is not so well marked, though there are two peaks on each side of it. The same peaks appear also on the surface of the chart. There is, however, a peak at 153, 192 which is not represented on Chart I.

On Chart III owing to the small number (38) we have no well marked peaks, but on the breadth diagram 150 mm., and on the length diagram 195 mm., show up well.

On the chart of the Highlanders the principal peak appears to be at 156, 203, a peak which is not strongly represented on any of the other charts. The favourite breadth among the Highlanders is 152, and the favourite length 203. There is a considerable difference therefore between the head measurements on the east and on the west coasts of Scotland.

Stature.—The average height standing of Group I is 5 feet 8½ inches; the average height sitting is 2 feet 11¼ inches. The same dimensions for Group II are 5 feet 7¼ inches, and 2 feet 11¼ inches.

The average height standing of Group II is 1 inch less than the same dimensions of Group I. This reduction of stature is evidently due to the presence of the ninety-one Peterhead townsmen in the Group II; for the average height of the ninety-one is only 5 feet 6½ inches.

NOSES.

Each nose was referred to the nearest of the five types specified by the Ethnographical Committee of the British Association:—(1.) Straight. (2.) High Bridge or Roman. (3.) Concave. (4.) Sinuous or Wavy. (5.) Aquiline, Beaked or Jew. Denoting these by the letters S. R. C. W. and J., the following gives the percentages in the different groups where they were noted:—

Group.					S.	R.	C.	W.	J.
Mintlaw gate (males)	...	...	...	...	56	17	17	7	3
" " (females)	...	...	...	...	60	7	27	5	1
Group I	...	...	...	...	66	20	4	8	1
" II	...	...	...	...	66	19	4	9	2
" III	...	...	...	...	63	21	—	16	—

There is a considerably higher percentage of concave noses and lower percentage of Roman noses among the females than among the males observed at the gate of the Mintlaw Gathering.

The percentages of the Groups I and II (all of which are males) are almost exactly equal, but they show more straight and fewer concave noses than the noses at the gate.

The fishermen, Group III, differ considerably from the rural population in this as in most other physical characteristics.

The following are the percentages of straight noses in some neighbouring countries as given by Beddoe, North-West Germany, 23 per cent.; Denmark, 30 per cent.; Sweden, 36 per cent. Of concave noses, Beddoe gives for Denmark, 20 per cent.; and for Sweden, 23 per cent.

Though this belongs more properly to the question of correlation, we may give here the association of hair colours with types of nose in the 2,860 adults observed at the Mintlaw gate. The following table shows the percentage of each colour of hair associated with each type of nose.

Type of Nose.	Hair.			
	Fair.	Red.	Brown.	Dark.
Concave	9.7	4.9	75.2	10.3
Wavy	11.5	3	69	16.5
Roman	8.3	6.3	67	18.6
Straight	9.4	6	63.3	21.4
Jew	8.3	1.7	58.3	31.7

We see from this table that the sum of fair hair and red hair is almost exactly equal for all types of nose (except the Jew), but that the proportion of dark hair varies considerably. The smallest amount is with the concave nose, and the largest with the aquiline or Jew nose. The other types are arranged in the order of increasing percentage.

This distribution of hair colour in relation to types of noses appears to make it highly probable that two dark-haired races, one with the Roman or Jew nose and the other with the straight nose, were among the parent race types of this mixed population; and also a fair-haired race with a concave nose.

CORRELATIONS.

The correlations between head breadths and heights standing and sitting, and the colour of the hair and eyes, have been worked out for the Groups I and II and are given in the following table. The average height of all persons of a given head breadth has been calculated and is written in the proper column after each breadth. The co-ordinates of the centre of pigmentation for all persons of a given head breadth has also been calculated, and is given under Y_c and X_c . From these the equivalent percentages of dark hair and dark eyes have been calculated and written under N. This may be called the percentage of nigrescence, if we may be permitted to borrow the excellent term used by Dr. Beddoe though in a somewhat different sense. The frequencies of each breadth is given in the first two columns, since these would have to be taken into account in calculating averages for two or three breadths. The stature and pigmentation varies so much for single breadths that it appears to be necessary to take averages of two or three to discover any law of correlation that may exist. We have not yet had time to investigate this thoroughly; but there appears to be stature above the mean with the highest and the lowest breadths, and stature below the mean at intermediate breadths.

As to the hair colour, Group I shows maximum co-efficients of nigrescence between breadths 150 and 154 and between 160 and 162. Group II shows maxima between 148 and 150 and between 160 and 162. We have not yet calculated the maxima of the eye colours, but they can easily be determined from the data in the table.

TYPES OR RACIAL ELEMENTS.

We have also calculated the mean heights and percentages of nigrescence for persons grouped around the peaks on the cephalic charts, which we have described above. These are given in the following table. The peaks are marked with circles on the charts and reference letters A, B, C, etc. These are placed in first column and marked I and II to indicate the group. Group III has not been dealt with as the numbers are too small. The numbers in Type I, F, are also rather small to give a reliable result. As a rule, the persons enclosed in a 3 mm. square round the peak have been taken, except when the number was too small, when a larger area was taken.

The uniformity of the stature in Types A, B¹, C in the two groups is remarkable: in the remaining types the agreement is not good. The larger heads are clearly associated with greater stature; cf. A, B¹, with C. The types in the two groups do not agree at all well in pigmentation or in noses.

PHYSICAL CHARACTERISTICS OF TYPES OR RACIAL ELEMENTS.

Type.	Mode. B L	Height Standing.		Height Sitting.		Hair.	Eyes.	Noses.					
		ft. in.	mm.	ft. in.	mm.			N.	N.	S.	R.	C.	W.	J.
I. A ...	155 195	5 8	1,727	2 11 $\frac{3}{4}$	907	56	36	60	4	—	13	—	
II. A ...		5 8	1,732	2 11 $\frac{3}{4}$	904	77	57	70	30	—	—	—	
I. B ...	156 203	5 9 $\frac{1}{2}$	1,756	3 0 $\frac{1}{4}$	926	87	61	41	23	—	18	18	
II. B ...		5 7 $\frac{1}{2}$	1,713	3 0	910	58	43	25	37	—	37	—	
I. B ^a ...	160 200	5 8 $\frac{1}{2}$	1,740	2 11 $\frac{1}{2}$	901	80	60	60	20	—	20	—	
II. B ^a ...		5 8 $\frac{1}{2}$	1,742	2 11 $\frac{1}{2}$	904	45	33	66	—	—	34	—	
I. C ...	150 192	5 6 $\frac{1}{2}$	1,692	2 11 $\frac{1}{4}$	895	74	28	57	22	14	7	—	
II. C ...		5 6 $\frac{1}{2}$	1,689	2 11	886	70	40	40	50	—	10	—	
I. D ...	150 195	5 8 $\frac{1}{2}$	1,740	2 11 $\frac{1}{4}$	898	39	66	67	11	11	11	—	
II. D ...		5 5 $\frac{3}{4}$	1,668	2 10 $\frac{1}{2}$	877	52	35	28	43	14	14	—	
I. F ...	145 185	5 8 $\frac{3}{4}$	1,749	3 0 $\frac{1}{2}$	927	67	50	50	50	—	—	—	
II. F ...		5 6 $\frac{1}{4}$	1,684	2 10 $\frac{1}{2}$	878	67	50	76	12	—	12	—	
II. ...	152 192	5 8	1,725	2 11 $\frac{1}{2}$	901	61	41	67	8	8	17	—	
Means for whole group.	I.	5 8 $\frac{1}{2}$	1,739	2 11 $\frac{3}{4}$	907	68	41	66	20	4	8	1	
	II.	5 7 $\frac{1}{2}$	1,713	2 11 $\frac{1}{2}$	900	70	45	66	79	4	9	2	

AFFINITIES.

In order to discover affinities to our types we have taken (chiefly from Beddoe's *Races of Britain*) average head dimensions corresponding as nearly as possible to the dimensions of our types. In cases where skulls only are available they have been converted into heads by adding 8 mm. to the breadth and 10 mm. to the length, these measurements of skin thickness being obtained from an actual subject, and of course only approximately correct in some cases.

Averages of known heads.	Breadth Length.		Types from Groups I and II.	Breadth Length.
	Skulls.	Heads.		
S. Somerset		151	Type C	150
		192		192
Danes		157	Type A	155
		195		195
Hanoverians		159	Type B ¹	160
		201		200
W. Somerset and S. Wales...		151	Type D	150
		195		195
Bronze age skull—				
[Banffshire (<i>Cr. Brit.</i>)] ...	157	165		
	185	195		
Long Barrow men—				
[mean of 27 (<i>Cr. Brit.</i>)] ...	142	150		
	126	206		

The stature of Bronze age men is given by Thurman as 5 feet 9½ inches and by Munro as 5 feet 8½ inches. This corresponds well with our Type B¹, which have also broad skulls.

The stature of the Neolithic or Long Barrow men is usually given as 5 feet 5½ inches, rather less than our Type C. The breadth of Type C agrees with that of the Long Barrow heads, but there are no heads on the charts having both the length and breadth of the Long Barrow skulls. The same may be said about the Bronze age heads, but their length, 195, forms one of the principal peaks in the frequency diagrams of lengths.

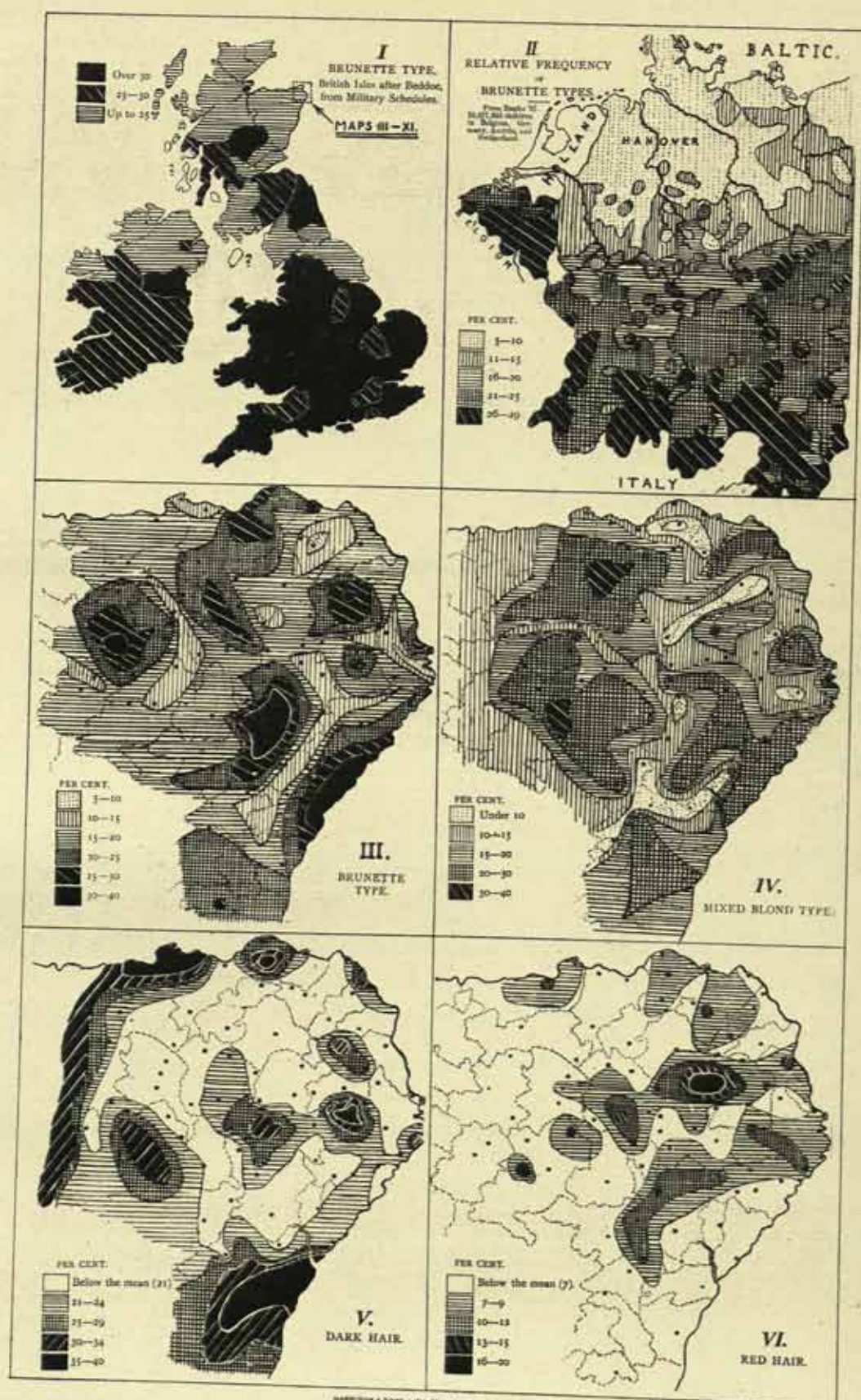
CONCLUSIONS.

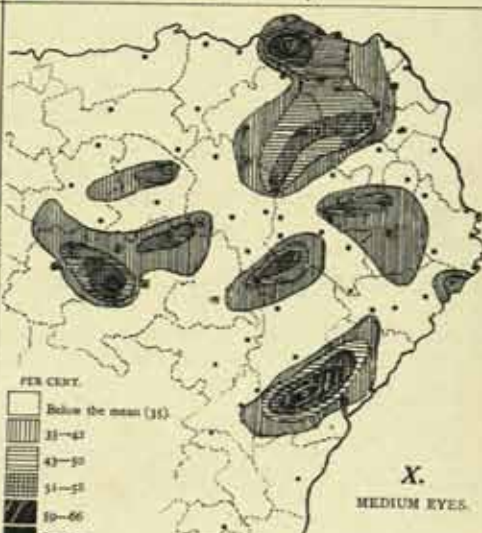
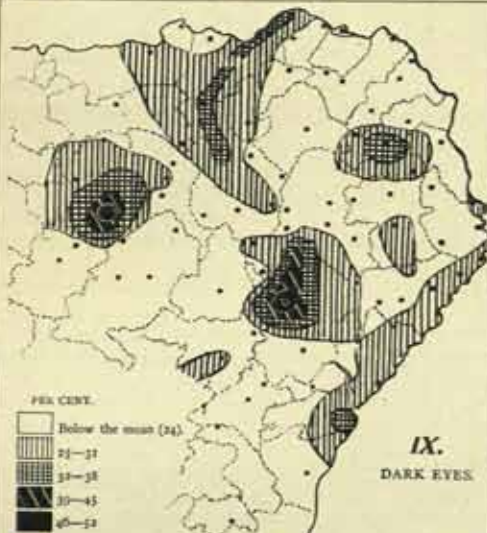
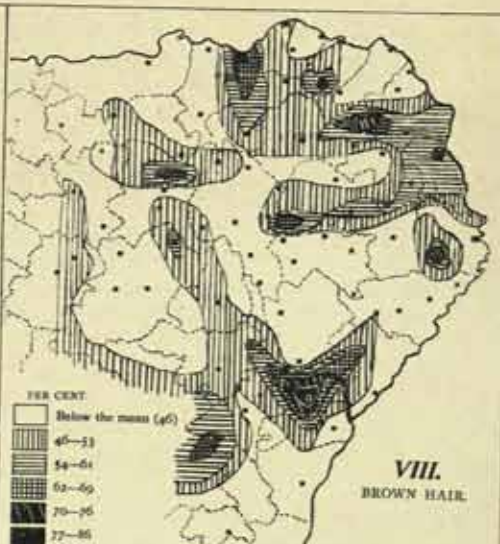
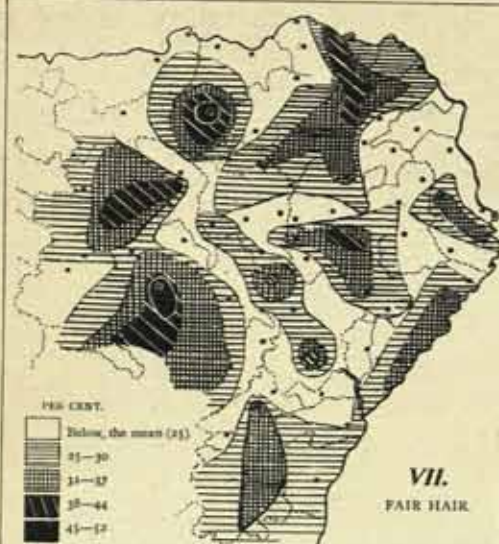
Far more complete statistics of the physical characteristics of the people of the British Isles are necessary before we can arrive at any certain conclusions as to the affinities and origin of the people dealt with in this paper. As to neighbouring countries, general treatises on the anthropology of Europe generally supply us only with cephalic indices. What measurements we have got show that there is very little difference in the cephalic indices of the racial elements of our population, but there is a very considerable difference in the absolute dimensions or their product. Comparisons will, therefore, have to be made on the absolute system. This we have not yet been able to do by examining original memoirs.

It is interesting to note that the head breadth of the Neolithic men, 150 mm., and the length of the Bronze age men, 195 mm., are still dimensions of maximum

frequency among the people of East Aberdeenshire, though there are no heads corresponding in both dimensions to these prehistoric types. Does this indicate that our population contains intermediate types evolved from their intermixture?

One pretty certain conclusion can be drawn from a comparison of the pigmentation of our school children with those of North Germany, namely, that we have a very much smaller percentage of this blonde element than has been generally supposed. The excess of brown hair over brown eyes in our case appears to be also a significant distinction. When a pigmentation survey of the school children has been carried out over the whole kingdom, we shall know a great deal better what these differences mean.

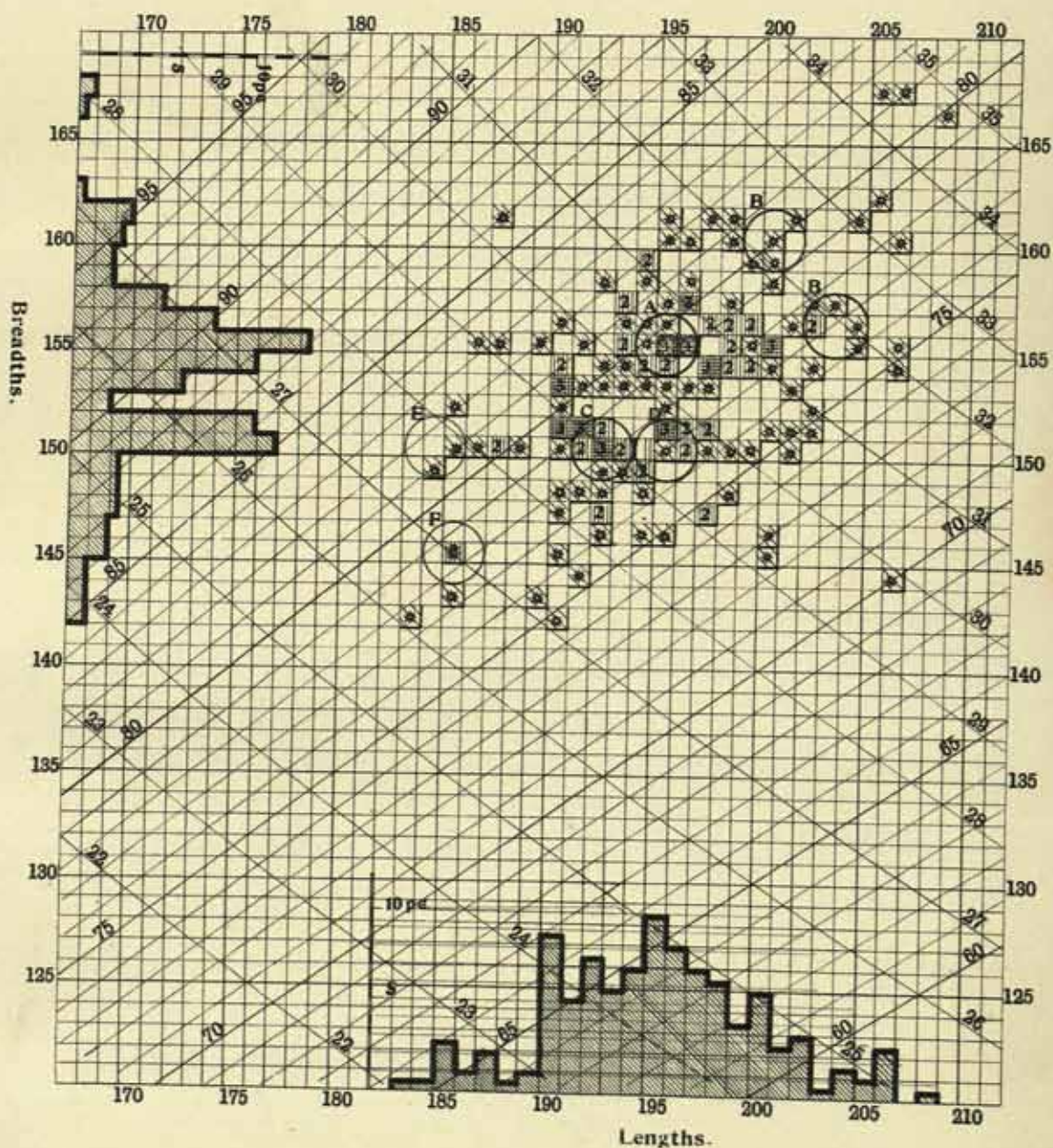


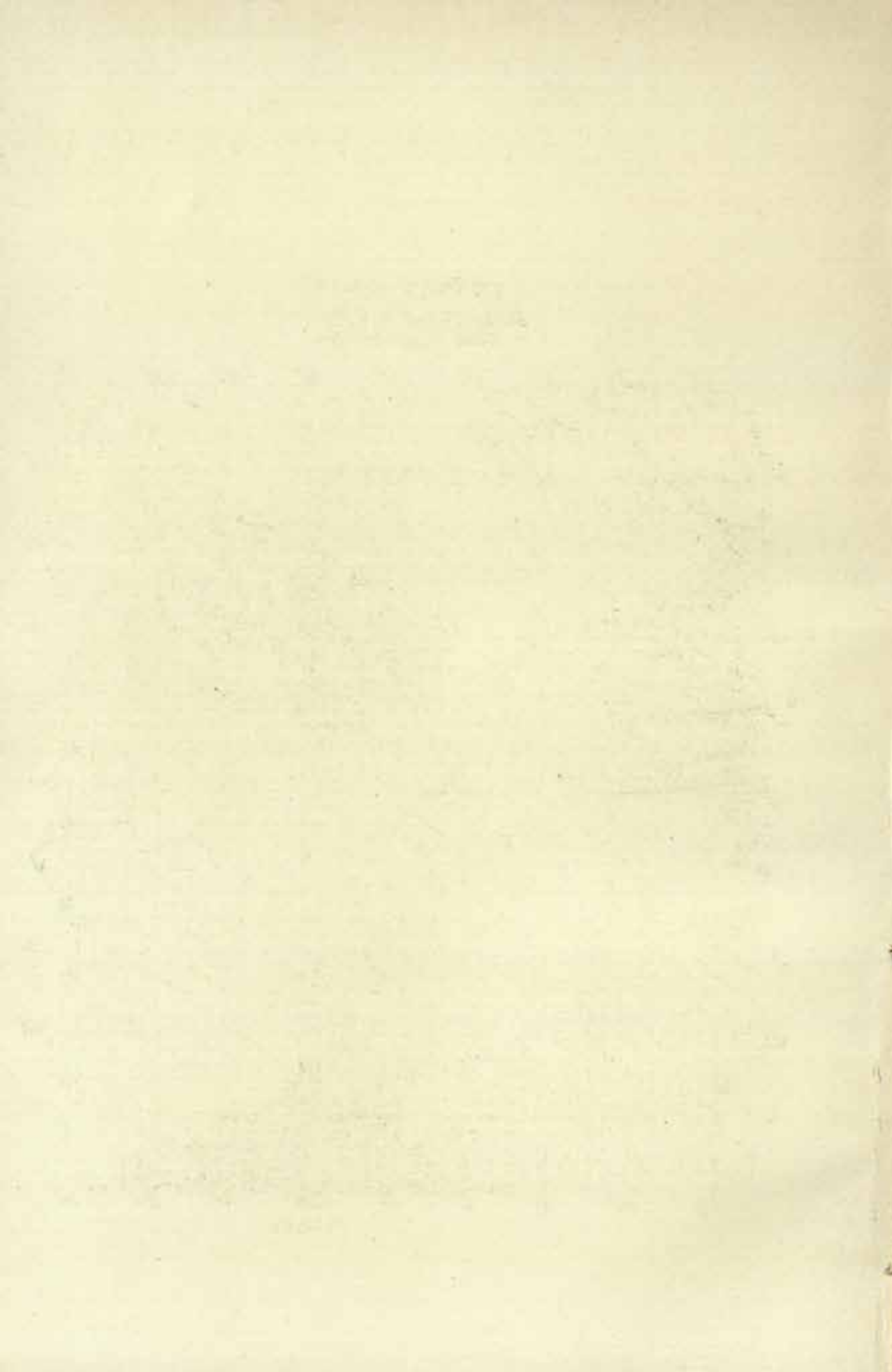


CEPHALIC CHART.

SCOTLAND, Aberdeenshire, E.

Table 1. 169 Persons.

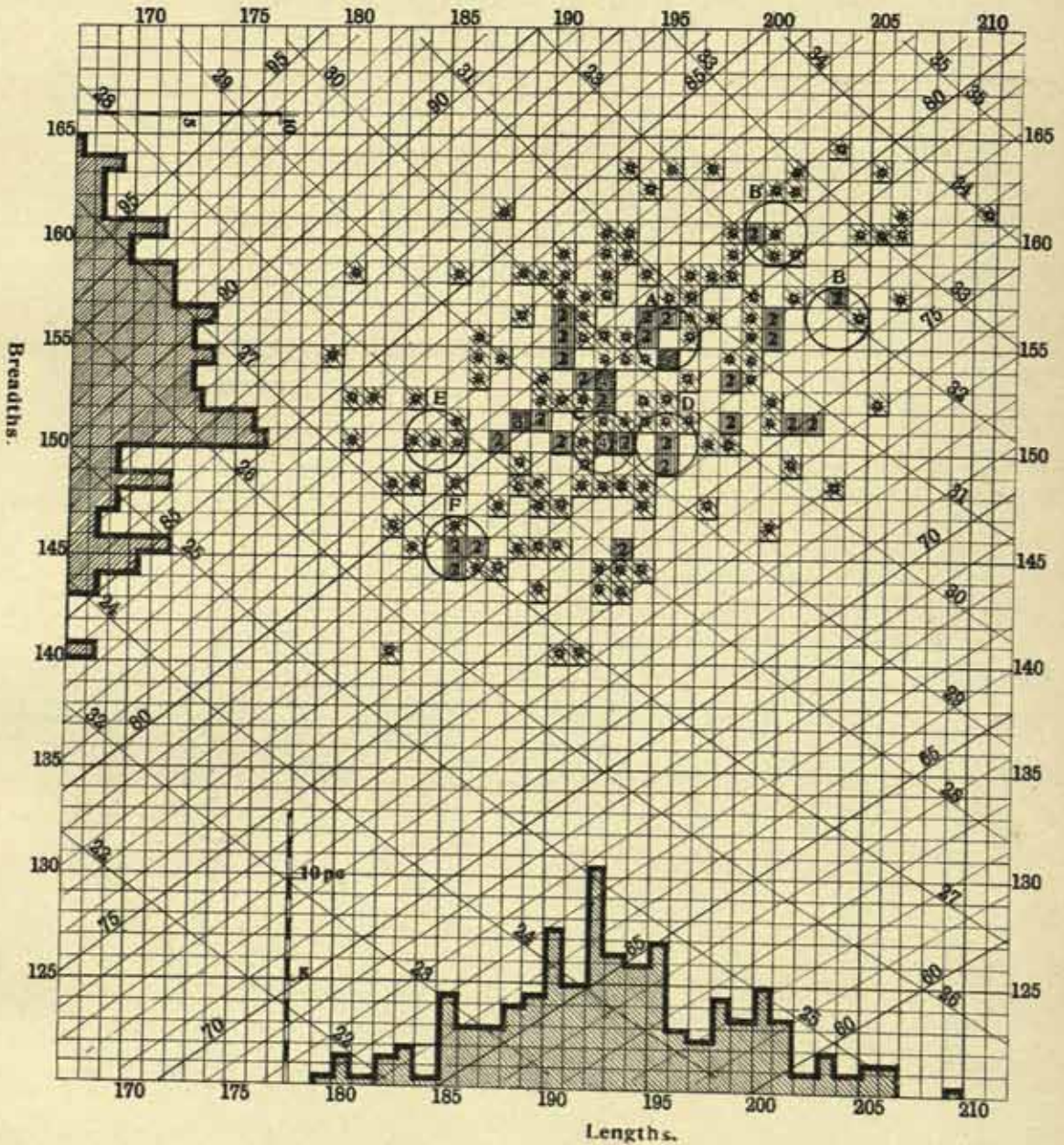




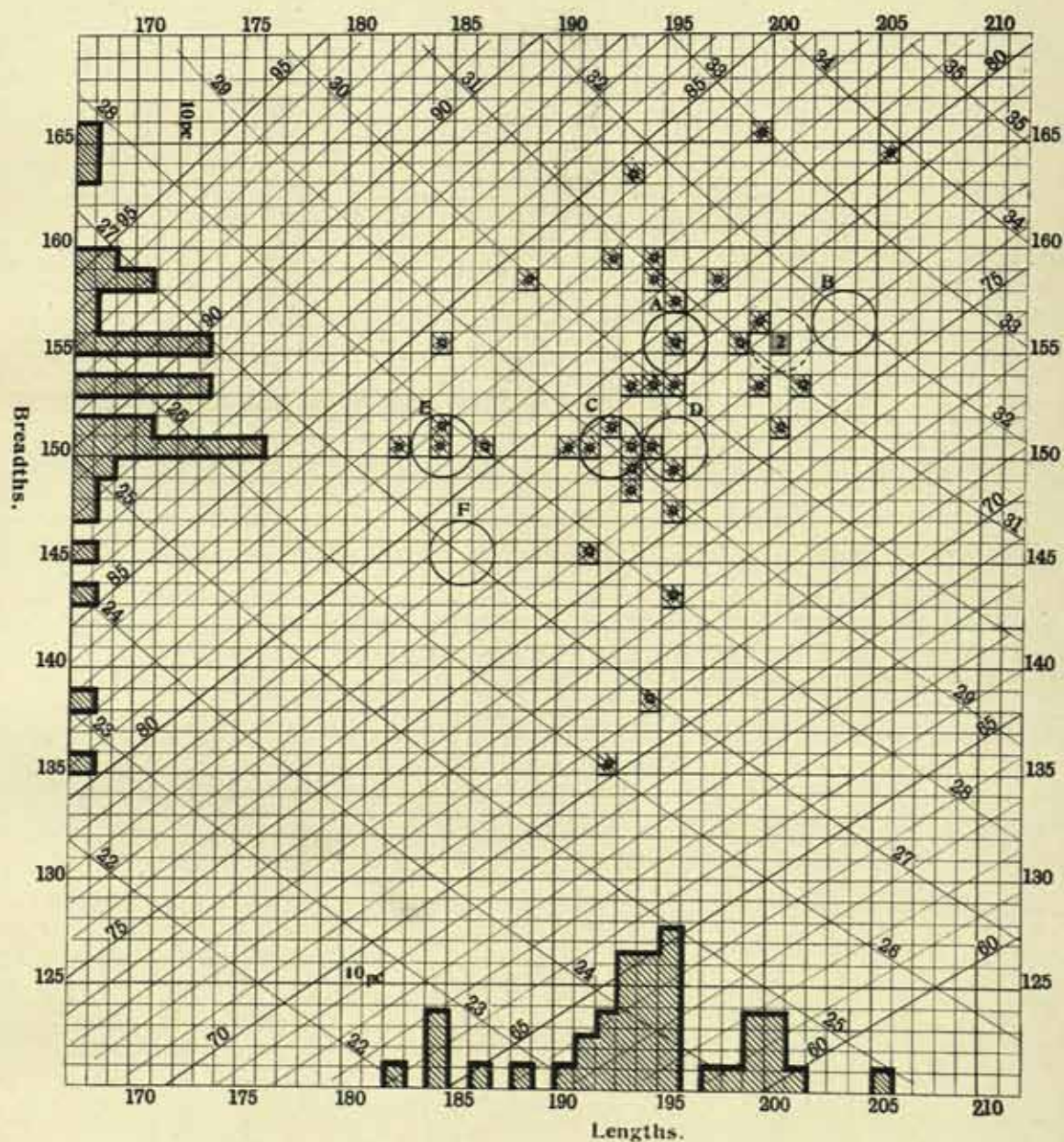
CEPHALIC CHART.

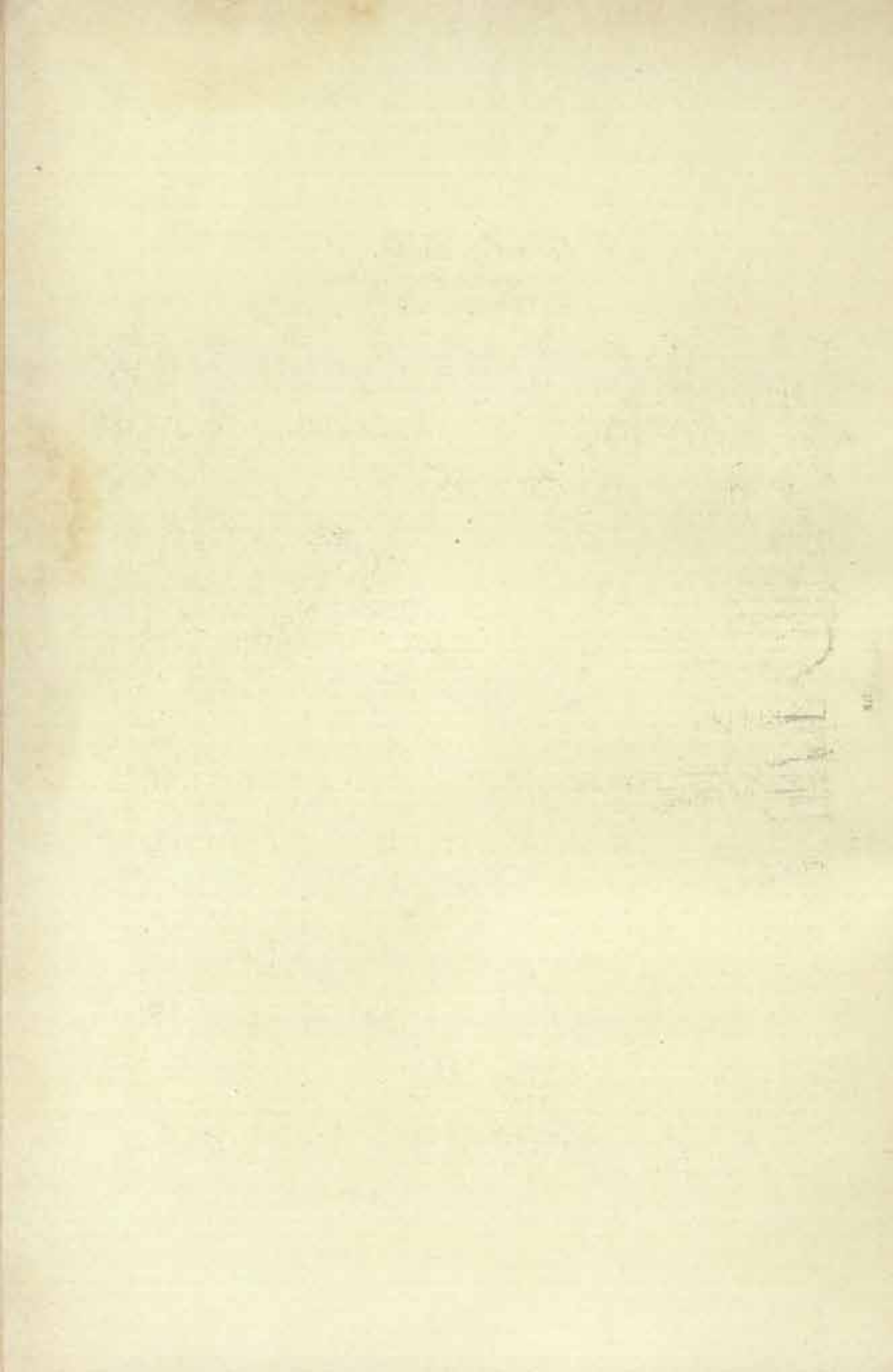
SCOTLAND, Aberdeenshire, E.

Table II. 195 Persons.



CEPHALIC CHART.
SCOTLAND, Aberdeenshire, E.
38 Fishermen. Table III.

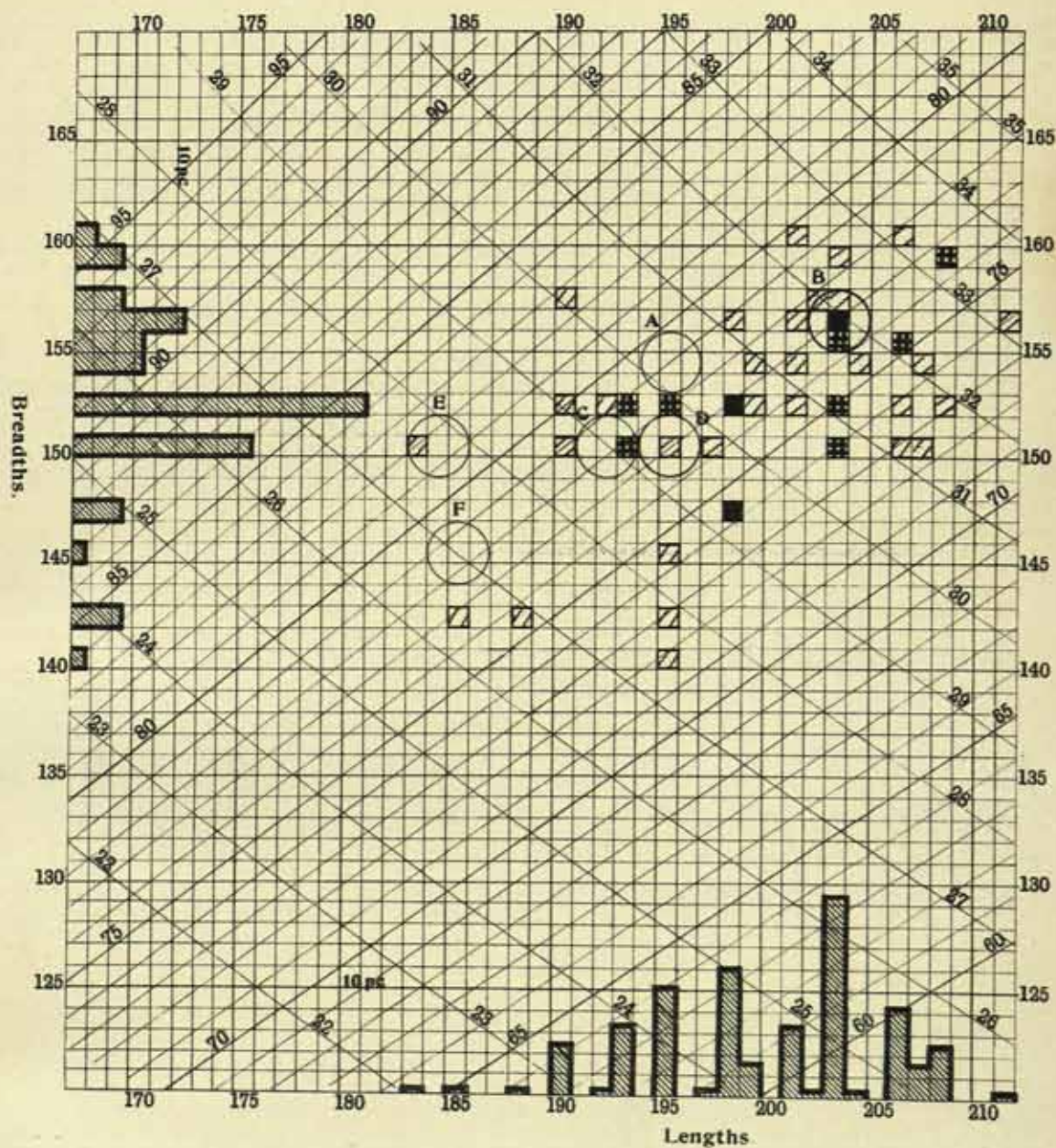




CEPHALIC CHART.

SCOTLAND.

57 Highlanders. IV.



A CONTRIBUTION TO ESKIMO CRANIOLOGY.

BY W. L. H. DUCKWORTH, M.A., AND B. H. PAIN, B.A.

(From the Anthropological Laboratory, Cambridge.)

[READ JUNE 12TH, 1900. WITH PLATES XVII AND XVIII.]

IN the course of the winter of 1899-1900, a number of Eskimo were exhibited in London at Olympia, and owing to the kindness of Mr. Taber, the manager of this part of the exhibition, we were enabled to obtain measurements of the individuals of the party.

A description of these Eskimo and of the tables of the measurements was communicated by us to the Cambridge Philosophical Society, in the Proceedings of which (March, 1900) the account will be found.

The measurements afforded us the means of drawing to scale a diagrammatic figure representing the average male adult Eskimo, and this figure was then sufficiently reduced to bring it into line with those published by Professor Thomson, of Oxford, in *Knowledge*, June 1st, 1899. In Fig. 1, our diagram for the adult male Eskimo (*a*), will be found compared with corresponding diagrams for adult males of (*b*) Anglo-Saxon, (*c*) Negro and (*d*) of aboriginal Australian origin.

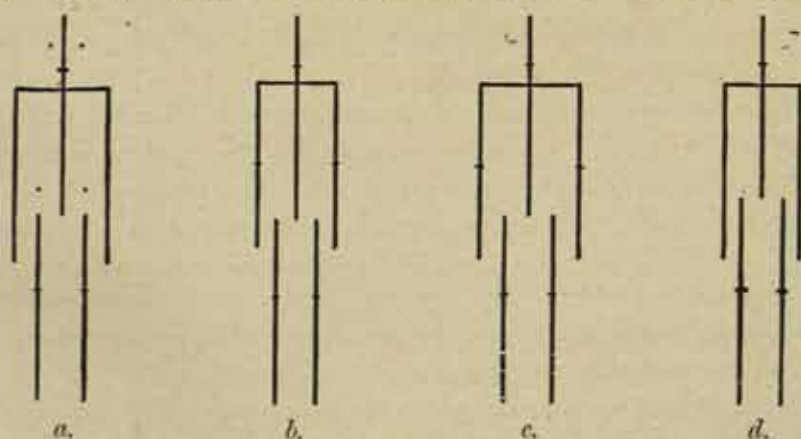


FIG. 1.

The remainder of the former communication consists of notes on the conditions of Eskimo life in Labrador, the native land of the individuals in question, and of comments on the general results of our observations in the light of records published by earlier workers (especially Virchow and Boas). It would be superfluous to recapitulate the conclusions arrived at, and in the present communication an attempt is made to determine the relations subsisting between the head and skull of the Eskimo, so as to obtain some idea of the

modifying effect on cranial form and contour to be attributed to the overlying soft tissues. In the second place, we have summarised observations on a large number of Eskimo crania which were studied by one of us in several European museums. Lastly, we propose to record without comment notes furnished by Mr. Taber on the Eskimo of Labrador which are not specially of the nature of observations on their physical conformation.

COMPARISON OF THE FORM OF THE HEAD WITH THAT OF THE SKULL OF THE ESKIMO.

Dealing in the first instance, then, with the comparison of the forms of the head and of the skull respectively, we naturally turn to the tables of measurements, and in the first place it is convenient to consider some absolute linear dimensions, without reference to the indices which are derived from them.

Number of Subjects measured.—From our measurements of the heads of the Labrador Eskimo, we obtained averages resulting from observations and records of eleven of the chief dimensions; and the material on which the observations were made consisted of eleven adult males and ten adult females, the measurements in the two sexes being treated of independently. (Table I.)

Number of Crania available.—In determining the corresponding dimensions of the Eskimo skull, we selected as many skulls of Labrador Eskimo as possible, supplementing the limited number of these by skulls of Greenland Eskimo. In this way we obtained averages based on observations of a number of crania of Eastern Eskimo varying from twenty and seventeen in the case of adult males, and from eight to eleven adult females (it was not possible at the time to obtain more undoubted female skulls than these).

The most important points in the accompanying Table (No. I), to which attention should be drawn, are as follows:—Firstly, the length of the head is absolutely great both in males and females; and the same holds good with regard to the breadth of the head in the males, in whom also the facial dimensions are of absolutely great size, both as regards the nasi-alveolar length and the bizygomatic breadth. The great size of the head is indicated also by the large figure representing the average horizontal circumference. Other comments on the dimensions recorded in Table I will be made in connection with the indices, and it is now necessary to note the results of a comparison of the average dimensions of the head and of the skull respectively in the two sexes. (Table IA.)

The Head and the Skull compared in respect of Maximum Length.—As the Table IA shows, great approximation is observed in the case of the maximum lengths of head and skull among the males, the average length of the head being 191.15 mm., and that of the skull 190 mm. From these figures it follows that the thickness of the soft parts overlying the skull of the living subject is but 1.15 mm., or .575 mm. in front and an equal amount at the occiput, supposing the thickness to be the same in each case (which is not, of course, actually true). But such a

margin as 1.15 mm. is quite inadequate, and the only conclusion is that there is an error in the determinations. It may be that the figure 190 mm. is too high for a correct representation of the average skull-length, or that 191.15 mm. is too low to serve as a proper representative of the head-length, or else, what is probably the case here, both these contingencies coexist. We are led to this conclusion from the consideration of the records made by Virchow (*Zeitschrift für Ethnologie*, Bd. xii), for on combining with our figures those recorded by Virchow, we are enabled to calculate the average head-length of fourteen adult Labrador Eskimo, and this is found to be 192.4 mm. in place of 191.15. So that had we as many heads available for study as we had skulls (*i.e.*, 20), the difference between the average head-length and the average skull-length would probably be still greater. Moreover, two of the Labrador skulls measured were weathered to a considerable degree and to some extent had been flattened; these skulls yielded figures which denote a greater horizontal length than the skulls originally possessed, and therefore helped, no doubt, to raise the value of the average skull-length to the high figure which actually represents it.

In the case of the collection of data referring to female heads and skulls (Table 1A) a very much greater discrepancy between these two dimensions will be found to obtain on the average. Herein the head-length is probably too great, and indeed we were conscious at the time of making the measurements that this was the case, for the thick growth of hair and the manner of plaiting and of arranging it generally interfered to a considerable extent with the attempts to record the head-length with accuracy.

Nasi-alveolar (or Upper Facial) Length.—A noteworthy approximation is observed in the case of the nasi-alveolar length as measured on the head, when it is compared with the corresponding dimension of the skull. In the living subject the alveolar point, being superficial, is not hard to determine, but there is generally some difficulty in ascertaining the exact situation of the nasion. This difficulty is particularly great in the Mongolian races and their allies, in which category we may provisionally place the Eskimo, and the difficulty is not always overcome even by close attention to the careful instructions of Topinard.

The Orbit.—Close approximation is observed in the case of the orbital diameters in the males, though this is not the case in the females so far as orbital width is concerned. The effect of this upon the orbital index will be realised subsequently. The modifying cause is probably a greater thickness of the subcutaneous tissues and a greater adipose deposit in this region in the female.

Horizontal Circumference.—The figures representing the horizontal circumference of head and skull require mention solely in order to indicate that the great excess of this dimension of the head over the corresponding measurement of the skull in the females is almost certainly due to the same influence as was mentioned with reference to the length of the head in females, *viz.*, the amount and the mode of dressing the hair. It follows that the figure relating to the head is rather too great.

The Nose.—The nose and its dimensions next claim our attention. In both sexes the nasal height measured on the living subject approximates closely to the corresponding dimension as measured on the skull; but in respect of nasal width a most remarkable difference exists, and is attributable not only to the expansion of the *ala nasi* in the case of the head, but also and more characteristically to the narrowness of the *apertura pyriformis nasi* of the skull. (As will be mentioned in another connection, a nasal index of 32.7 has been observed by one of us in a Greenlander skull.) We have supplemented the foregoing discussion of the measurements by diagrams drawn to scale on quadrille paper, and embodying all the dimensions observed by us which can be studied in *norma facialis* (Figs. 2, 3). In preparing the diagrams, which are half the actual size of the originals, the average values of the maximum breadth of head and skull for the two sexes respectively were first marked. Outlines from photographs of male and female Eskimo skulls were then used as guides in the completion of the contours, which are thus those of the photographs mentioned, but modified in accordance with the values obtained for the several dimensions. It must be noted that the average value of the bigonial breadth has been made use of, but as this was determined on the living persons only and not on crania, no discussion on this part of the subject is possible.

Indices.—We may now pass on to the subject of cranial indices, and we must in the first place compare those based on the average dimensions of the Eskimo head with those which are derived from the average dimensions of the skull in this race. And inasmuch as our own observations relate to two series of skulls, one being the Cambridge series, and the other that of the museum of the Royal College of Surgeons in London, we have combined data from both these collections in order to arrive at an average value for each dimension based on a sufficiently large number of individual records. But it is necessary to state very explicitly that three sets of data are to be kept quite apart and distinct for the very sufficient reason that in this *combined* series of indices (based on the study of male and female crania in both collections), the data relating to each sex are kept entirely apart; whereas in two other series of averages, referred to hereinafter as the College of Surgeons series and the Cambridge series respectively, the average figures are derived from observations on males and females without distinction. We will therefore first take Table No. II, where the data for male skulls are kept distinct from those relating to female crania. Our measurements enabled us to determine the indices of the averages in five sets of dimensions, so as to afford average figures for five indices. It is perhaps hardly necessary to mention that this gives a slightly different result from a simple determination of the average of the indices. The indices are as follow:—The cephalic or breadth index (the maximum length and *not* the ophryo-occipital length of the head or skull being employed), the facial index of Kollmann (*nasi-alveolar* facial length and *bizygomatic* facial breadth), the *naso-malar* index of Oldfield Thomas (*jugo-nasal* arc and chord), the orbital and the nasal indices (of Broca).

Correspondence of Indices of Head with Skull in Males, compared with correspondence of the same Indices in Females.—We find a slight difference between the sexes when we compare the correspondences and the divergences of the indices in the head and skull respectively. For instance, the sexes differ when the breadth index is in question, but they agree in respect of the orbital and the nasal indices, and on the whole the agreements are greater than the differences.

The Males alone.—If we consider the males alone, we shall find that the facial and the naso-malar indices reveal, by their similarity in head and skull, a close agreement as regards the proportions expressed by those indices, from which we argue that these indices, when obtained from measurements of crania, afford relatively reliable information as to the proportions of the face in the particular race under consideration (the Eskimo). Especially is this the case with Kollmann's facial index. It must not, however, be forgotten that these remarks refer to the case of the average and not to that of the individual example. In the next place, but always treating of the males alone, the breadth, the orbital, and the nasal indices yield average values more or less different in the head and the skull respectively, the greatest divergence being presented by the nasal index. Reverting to the breadth index, we see that the figure for the Eskimo head (77), differs from that of the skull (71.5) by no less than 5.5 units. The difference is estimated by Boas (*Zeitschrift für Ethnologie*, 1895, Band xxvii) at 2.2 units for the Eastern Eskimo, and though this figure appears to us to be too low, yet we think that 5.5 is undoubtedly too high. In fact, this difference is influenced by the two factors mentioned previously in discussing the relation of the maximum length of the head to the maximum length measured upon the skull. We there saw that our observations in the case of the head yielded a figure (191.15 mm.) probably below the true average, whereas the corresponding measurements on the skull gave (in consequence of two weathered skulls being admitted) too high an average figure (190 mm.). Both influences determine the magnitude of the difference of 5.5 which we are now discussing, but the study of the indices shows us that inasmuch as the average breadth index of the skull obtained by us agrees closely with those obtained by earlier observers,¹ we should therefore attribute a more prominent part to the former (viz., the measurement of the length of the head in the living) than to the latter (viz., the measurement of the length of the skull) in producing the discrepancy in question, and Bordier's record (Topinard, *op. cit.*, p. 409, average index of four Eskimo heads 73.7) supports this conclusion. In other words, the difference observed between the cephalic indices of the average head and of the average skull is greater than is probably the case in reality; and it is probably due to the fact that the figure (77) representing this index for the average head is too great, and not so much to the fact that the figure (71.5) which is the index for the average skull is too small.

¹ Cf. Topinard, *Éléments d'Anthropologie Générale*, p. 357, De Quatrefages and Hamy (*Crania Ethnica*, average breadth index of two Eskimo skulls from Labrador in the Blumenbach collection, 70.5), also Boas, *loc. cit.*, and Schenk (*Bulletin de la Soc. Neuchâtel: de Géographie*, 1899).

Orbital Index.—In the two remaining indices, differences of considerable degree are also found to exist when the figures relating to the average head are compared with those yielded by the average skull. This difference in the case of the orbital index is probably determined by the slight inaccuracy in determining the width or horizontal diameter of the orbit in the living subject. As a rule it is almost impossible to determine this diameter in a way strictly comparable to that employed when the skull is being measured. Males and females are alike in respect of this difference in the orbital index, and the disturbing cause is probably the same in both.

Nasal Index.—As regards the nasal index, we find here, as we should expect, the greatest difference between the cephalic and the cranial figures, amounting to nearly 19 units. As was previously remarked, there is a great difference between the nasal width as measured on the living subject and the width of the *apertura pyriformis nasi*, known as the nasal width of the skull.

Female Examples.—The preceding remarks refer to male subjects. When we pass to the consideration of the female crania, we find in respect of the cephalic or breadth index a much closer agreement between the average head and skull than in the male. It must be remembered that we are dealing with very small numbers of specimens here, as undoubted female Eskimo skulls, especially from Labrador, are scarce. Carr's figures, quoted by Topinard (*op. cit.*, p. 376), give a figure (70.9) considerably below ours (73.1), so that we cannot suppose that the sexual factor is accountable for the difference between the average male and the average female skull in respect of the breadth index as shown in our table. We think that further discussion will be more profitable when a larger number of female heads and of female crania have been measured, and the results will almost certainly show that the correction necessary to obtain the cephalic index of the living individual from the index yielded by the skull will be different in the two sexes. Such an allowance for the sexual factor is made in other instances by Mies (see Ripley, *L'Anthropologie*, 1896, and Topinard, *op. cit.*, list of references, p. 374).

With regard to the facial index, it is equally hard to explain the discrepancy that exists between the average female head and skull. Most probably the determination of the nasi-alveolar length in the living is the disturbing factor. The remarks already made with respect to the naso-malar, to the orbital, and to the nasal indices in the males apply equally to the females and need no supplement in this place.

Other Series of Measurements and Records.—It remains to mention the results of our measurements of the Eskimo crania in the museum of the Royal College of Surgeons and of those in the Cambridge Anatomical Museum. We may repeat the warning that the figures we are now considering relate to all Eskimo crania, male and female alike, in each of those collections, whereas up to this point we have kept the data based on observations on male crania apart from those yielded by female skulls. We have, moreover, in the case of the series at the museum of the College of Surgeons, a larger number of individuals than was available

for the construction of Table Ia, on which to base our conclusions; and at Cambridge skulls from Labrador form a very large proportion of the whole series. The data enable us to calculate the five average indices already spoken of in connection with the measurements of the head (viz., the cephalic or breadth index, the facial index of Kollmann, the naso-malar index of Oldfield Thomas, the orbital index of Broca, and the nasal index of Broca). We will first institute comparisons of the cephalic or breadth index of the skulls in the museum of the Royal College of Surgeons comprising males and females, with the same index derived from the study of male skulls alone (from the College of Surgeons and from Cambridge). We see (Table III) that when male skulls alone are considered the index of the average (71.5) is slightly lower than the average of all the Cambridge skulls (eleven in number) measured; while it is distinctly below that (72.03) of the males and females measured at the College of Surgeons (twenty-four in number). In the whole series of comparisons the differences do not exceed 2.5 units, except in the case of the facial index of Kollmann, where the difference amounts to 3.18 units. But the disturbing series is that at Cambridge, and the modifying factor is almost certainly the index given by an adult female skull (1872) which amounts to the unusually high figure of 62.3; and since only six skulls of this series were available for the determination of this particular index, the influence of a single index of such high value is brought out very strongly in the average. On the whole, then, we conclude that the records of Table II amount to a very close approximation to the actual state of cranial proportions in the Eastern group of the Eskimo. We have also analysed the cranial characters of the Labrador Eskimo as represented by the specimens presented by Dr. Curwen to the Cambridge Anatomical Museum; we have carefully revised the measurements of these skulls (published by one of us in 1895 in the *Journal of the Anthropological Institute*) and the indices derived from the measurements, and in working out the averages of the indices obtained, it became apparent that the greatest divergences from the averages were met with in the skulls of the Labrador Eskimo, and not among the skulls of the Greenland Eskimo. Not only was the greatest divergence in the averages found in the cephalic, vertical, and nasal indices, and also in the horizontal circumference of the Labrador Eskimo skull, but in the ten specimens which comprise the series, the Labrador skulls were the most divergent from one another. In the cephalic index this was most striking, the highest index of all the ten skulls being provided by a Labrador skull with an index of 75.4, and the lowest of all the ten skulls being that of a Labrador skull with an index of only 65.8. Again, considering the horizontal circumference in the series of ten skulls, the largest circumference (of 550 mm.) is that of a Labrador skull, and the smallest circumference (476 mm.) is also that of a skull from Labrador. A similar variation was found in the facial index of Kollmann—the average was 54.36, but the greatest index above this number was that of a Labrador Eskimo skull (index = 62.3). So the point which seems to be worth emphasising is this: that in comparing Labrador and

Greenland Eskimo, the greatest divergences are to be met with in the crania of Labrador Eskimo, and that the crania of the Greenland Eskimo are more constant in the particular features observed.

The actual figures and the average indices will be found in Table IV (*q.v.*).

CERTAIN CRANIOLOGICAL CHARACTERS OF THE ESKIMO.

The second part of our communication deals, as has been previously intimated, with certain craniological features of the Eskimo as viewed in the light of observations incidentally made in the course of the foregoing investigations. The following are those to which special attention has been paid:—

The scaphocephalic character of the Eskimo cranium;

The frequency of a persistent infra-orbital suture;

The asymmetry of the foramen magnum;

The usage of the teeth, especially of the incisors;

The thickening of the body of the mandible;

The characters of the skull of the Eskimo child;

and the percentage frequency of several of these will be found in Table V.

Scaphoid Skulls and Obliteration of Sutures.—It is well known that a scaphoid appearance of the cranium (most easily perceptible when the view is that of norma facialis or occipitalis) is very common in Eskimo crania; and whereas such a degree of scaphocephaly is very commonly (but by no means invariably) associated with obliteration, either partial or complete, of the sagittal suture in the skulls of other races, such synostotic fusion of the two parietal bones is in the Eskimo crania not nearly so common as in those of other races. An extreme degree of development of the scaphoid character is to be seen in the skull labelled A.B., ♂, 15, 141, of the collection in the Anatomy School at Copenhagen, and this skull presents no sign of even incipient obliteration of the sagittal suture. We have tested the accuracy of the statement, as regards Eskimo crania in general, by observations on twenty-eight crania of Eskimo in the museum of the College of Surgeons in London. In eleven of these the scaphoid character was strongly marked, but only in one of the eleven was there anything more than quite a negligible amount of sagittal synostosis. Other very good examples of the degree of scaphocephaly which may be attained before the sagittal suture has become obliterated is to be observed in the cranium No. 48A of the Anatomical Museum at Kiel, and in an Eskimo skull at Halle. In this Eskimo cranium, obliteration of the sagittal suture is incipient only. The other three crania on the same negative (Fig. 4), though not Eskimo, are not without interest, as showing the absence of the scaphoid character of the cranial vault in specimens in which the sagittal suture had become obliterated at an early (and in one case at an almost infantile) period.¹ This is a convenient place to mention that in contrast to the foregoing condition, where the sagittal suture remains unclosed, and also to the next subject

¹ We thus have evidence that Virchow's well-known generalisation on this subject is not without exceptions.

of consideration, viz., the persistence of the infra-orbital suture on the facial aspect of the cranium, there may occur in aged individuals a very complete synostosis even among the Eskimo. Such an aged skull is to be seen in the Stuttgart Museum. In this specimen synostosis has occurred even in the maxillo-malar suture, which has been obliterated thereby.

Infra-orbital Suture.—The comparatively great frequency with which the facial part of the infra-orbital suture persists in adults seems to be another characteristic of Eskimo crania. The following data have been collected by us in illustration of the frequency of this occurrence:—

In the very large collection of skulls of the Greenland Eskimo in the anatomical museum of the University at Copenhagen, one hundred and eighty-five examples were examined, and the suture found in eighty-one skulls on one or the other side of the face. Of the collection of Eskimo crania in the museum of the Royal College of Surgeons in London, twenty-four were examined, and nineteen showed persistence of the suture, in fifteen of which the persistence was bilateral, the suture remaining on one side only in the other four specimens. Combining the two sets of observations, we may say that the suture persisted in one hundred out of two hundred and nine crania of Eskimo adults.

It would seem from observations on crania of the gorilla that persistence of the suture may be associated with great lateral expansion of the upper maxilla, for in the crania of gorillas the suture persists for a considerable time: the well-known characteristic of Eskimo skulls, viz., great bi-malar width, would thus be explained. But this is not an entirely satisfactory explanation, for in the orang-utan, an ape in which there is at least as great a development of the upper maxilla in the lateral direction, as in the gorilla, the infra-orbital suture is closed comparatively very early.

The Contour of the Foramen Magnum.—The foramen magnum and its surroundings next claim attention. The pyriform shape due to imperfect ossification at the posterior margin is a very frequent character, though it is perhaps hardly correct to speak of it as an anomaly, for it is apparently a retention of the infantile character of this foramen. It was observed in nine out of twenty-four skulls in the museum of the Royal College of Surgeons, and in four out of eleven cases at Cambridge. Asymmetry of the marginal contour is also not uncommon; sometimes the condyles are associated, involved in the distortion. At Copenhagen two hundred and nine Eskimo crania were examined with reference to the occurrence of asymmetry in the margin of the foramen magnum, and three instances of this condition occurred. At the museum of the Royal College of Surgeons the frequency of this asymmetry in Eskimo skulls was much greater, viz., four cases among twenty-eight crania. Combining the two sets of data, the frequency observed is seven in two hundred and thirty-seven crania.

Additional Facet on margin of Foramen Magnum.—As regards the frequency of occurrence of an additional articular facet on the anterior margin of the foramen magnum, this was presented by three skulls only out of one

hundred and eighty-five crania of Greenland Eskimo (Copenhagen collection) examined.

Eustachian Processes.—It is convenient to mention in this place that two out of fifty-five Eskimo skulls (at Copenhagen) bear large Eustachian processes on the petrous bones on either side (such processes being commoner in the lower than in the higher races, and not infrequent in gorilla skulls).

The Teeth.—The following notes refer to the condition of the teeth:—Among the Eskimo skulls in the Copenhagen collection, the appearance described long ago (1861, *Nat. Hist. Review*) by Lord Avebury as characteristic of Greenlanders is not met with very frequently. The Copenhagen skulls are mentioned separately as being those of Greenlanders, but the appearance referred to (the incisors meeting edge to edge and the surface becoming much worn) is not frequent among the Eskimo crania in the collections in London and Cambridge, including crania from Labrador. In one skull at Copenhagen the lateral incisors had not been developed, although the skull was that of an adult. The palate in this specimen is wide and the teeth large. In three crania of the same Eskimo series, and also (and especially) in the Eskimo skull No. 48A of the anatomical collection at Kiel (the specimen figured in connection with synostosis and scaphocephaly), the same curious dislocation of the molars so frequent among Maori and Mori-ori skulls (where there is great usage of the lateral surface of the crown and of the exposed root or roots) is observed (*cf.* Scott, *Trans. N. Zealand Institute*, 1893; and W. L. H. Duckworth, this *Journal*).

Thickening of the Mandible.—The next point to which we must refer is a remarkable thickening of the body of the mandible, not exclusively confined to, but very common in, Eskimo and Greenland crania. The thickening is most marked about the level of the second molar tooth, and is due to a subperiosteal deposit, the exciting cause of which is uncertain. This thickening was observed in six out of twenty-four Eskimo crania in the museum of the Royal College of Surgeons, and in four mandibles out of eight at Cambridge.

Nasal Skeleton.—Several points in connection with the nasal skeleton deserve special mention. Thus in two skulls out of fifty-six at Copenhagen well marked pre-nasal fossæ were observed; again, in the Anatomical Museum at Kiel, where there is a collection of some ten skulls from Greenland, excessively attenuated nasal bones are seen in specimen No. 11, while No. 19 of the same series has the lowest nasal index (*viz.*, 32.7) with which we have yet met.

Crania of Children.—The Kiel series, moreover, contains three crania of Eskimo children, which are of special interest, for they enable us to learn which of the striking characters of the adult Eskimo cranium have been early acquired, and which are assumed comparatively late in the period of growth from childhood. Other crania were carefully observed with this object in view, and the opportunity was taken of similarly observing some crania of Eskimo children at Copenhagen. Though the support of numerical data cannot yet be appealed to, it is submitted that the following characters of the adult Eskimo crania appear very early, and

therefore may be regarded in the adult as retentions of infantile characters. These are:—

1. The dolichocephalic character. (Two mesaticephalic Eskimo crania were seen at Copenhagen, but these were not crania of children and were possibly not pure Eskimo.)
2. A megasemic orbital aperture.
3. A pyriform contour of the foramen magnum.
4. A flattened nasal skeleton.
5. Prominence of the chin. (This prominence is perhaps more apparent, in consequence of the condition referred to in No. 4, than real.)
6. Small mastoid processes.
7. A longitudinal palatine torus.
8. Persistence of the infra-orbital suture.

Whereas the following characters have been acquired by the skull in the course of growth:—

1. A low nasal index depending on relative narrowness of the apertura pyriformis nasi.
2. A scaphocephalic cranium without sagittal synostosis.
3. Greater prominence of the malar bones.

In concluding this paper, we wish to refer to two other specimens at Copenhagen, viz., A.B., α , 56, a Greenland cranium remarkable for being atypical in its facial though typical in its cranial features, and thus constituting a transitional type; and No. 159, where the external pterygoid plate is most curiously perforated and a reduplication of Civinini's foramen may be seen (the question of weathering is excluded). Finally, we have to reserve the consideration of the brain of the Eskimo, though the accounts of Chudzinski and Hrdlicka are not quite in accord on this subject, and the subject is one of great interest.

References to and explanations of the accompanying tables will be found in the text; but further, we have added a series of notes provided by Mr. Taber, and it should be understood that they are recorded without comment and as nearly as possible in the form in which they were communicated to us, for they belong to rather a different aspect of anthropology from that to which we have endeavoured to confine ourselves in the foregoing communication.

TABLE I.—MEASUREMENTS ON THE LIVING ESKIMO.

Measurement.	Males.	No. available.	Females.	No. available.	Males.				Females.			
					Head.	No. available.	Skull.	No. available.	Head.	No. available.	Skull.	No. available.
Maximum length of head ...	191.15	(11)	190.25	(10)	191.15	(11)	190	(10)	190.25	(10)	179	(11)
Maximum breadth of head....	147.65	(11)	141.8	(10)	147.65	(11)	136	(10)	141.8	(10)	131	(11)
Breadth of face ...	× 142.2	(11)	× 136.6	(10)	142.2	(11)	139	(17)	136.6	(10)	129	(6)
Nasi-alveolar length ...	73.15	(6)	69.35	(10)	73.15	(11)	72	(18)	69.35	(10)	70	(8)
Jugo-nasal chord ...	116.6	(10)	× 113.4	(8)	116.6	(10)	100	(10)	113.4	(8)	98	(8)
Jugo-nasal arc ...	127.1	(10)	× 122.8	(8)	127.1	(10)	107	(18)	122.8	(8)	104	(8)
Orbital height ...	34.9	(11)	36.6	(10)	34.9	(11)	35	(10)	36.6	(10)	34.5	(9)
Orbital width ...	42.6	(11)	42.7	(10)	42.6	(11)	40	(10)	42.7	(10)	38	(9)
Horizontal circumf. of head	559.5	(11)	547.2	(10)	559.5	(11)	525	(17)	547.2	(10)	498	(9)
Nasal height ...	57.4	(10)	51.25	(8)	57.4	(10)	53	(15)	51.25	(8)	50	(9)
Nasal breadth ...	36.8	(10)	32	(8)	36.8	(10)	24	(15)	32	(8)	22	(9)

TABLE I.

NOTE I.—It is to be noticed that in four cases the figures here given differ slightly from those published in the *Proceedings of the Cambridge Philosophical Society*. The four figures are marked thus x, as in the case of the facial breadth. An error in the measurement of this dimension in one of the men, "John," was detected in revising the averages, and raises this average by .5 mm., and in the case of the women an alteration of .1 mm. is needed; the other two are altered, *i.e.*, slightly increased, by the inclusion of the measurements of another individual, so that these averages are now based on data from five instead of four individuals.

TABLE IA.

- NOTE I.—The above dimensions, with the exception of the maximum length and the horizontal circumference, are reproduced in the diagrams (see Figs. 2 and 3).
- NOTE II.—The average value for the maximum length of the head when the records made by Virchow are combined with our data is 192.4 mm. (fourteen heads). Virchow's other data have not been worked up into combination with ours. Cf. Virchow, *Zeitschrift für Ethnologie*, Band xii, 1880.
- NOTE III.—See also Schenk, *Bull. de la Soc. Neuchât. de Géographie*; abstracted in the *Centralblatt für Anthropologie*, 1900. Two skulls of Labrador Eskimo in the Lausanne Museum are described, and among other measurements we find: Hor. circ. 540 and 533, average 536.5(4), which with our figures gives an average of 526 for nineteen skulls, supposing the Lausanne skulls to be those of males. Facial breadth, 137 and 134, average 135.5—with our figures gives 135.6(19) as the average. But our figures are only very slightly altered thereby.

TABLE II.

Indices based on data provided in Table Ia.	Males.		Females.	
	Head.	Skull.	Head.	Skull.
Cephalic or breadth	77	71.5	74.5	73.1
Facial (Kollmann)	51.4	51.8	50.7	54.2
Naso-malar (Thomas)	109.6	107	108.3	106.1
Orbital	81.9	87.5	85.7	90.1
Nasal	64.1	45.3	62.4	44

TABLE III.

Indices.	Males.		Males and Females.	
	Data provided in Table Ia.			
	Head.	Skull.	Skull.	Skull.
Cephalic or breadth	77	71.5	72.03	71.8
Facial (Kollmann)	51.4	51.8	51.18	54.36
Naso-malar (Thomas)	109.6	107	106	107.9
Orbital	81.9	87.5	88.5	88.65
Nasal	64.1	45.3	42.8	45.55

R.C.S. Museum of Royal College of Surgeons.

C. Cambridge Anatomical Museum.

TABLE IV.—AVERAGES OF MEASUREMENTS OF THE TEN SKULLS OF ESKIMO IN THE ANATOMICAL MUSEUM AT CAMBRIDGE.

- I. Average *Cephalic Index* = 71.8. 10 skulls (Labrador and Greenland).
- { Greatest div. above = 75.4 } Both Labrador
 { " " below = 65.8 } skulls.
- 4 Greenland skulls. Average *Cephalic Index* = 72.5.
- 6 Labrador " " " " = 72.08 { Greatest div. above = 75.4 } Both Labrador
 { " " below = 65.8 } skulls.

- II. Average *Vertical Index* = 73.5. 9 skulls. Labrador and Greenland.
 Greatest divergence above = 79.2 } *both Labrador skulls.*
 " " below = 69.3
- III. Average *Orbital Index* = 88.65. 8 skulls. Labrador and Greenland.
 Greatest divergence above = 94.7 — a *Labrador skull.*
 " " below = 78.6
- IV. Average *Nasal Index* = 45.55. 7 skulls. Labrador and Greenland.
 Greatest divergence above = 2 of 50—one was a *Labrador skull.*
 " " below = 40.3—a *Labrador skull.*
- V. Average *Facial (Kollmann) Index* = 54.36. 6 skulls. Labrador and Greenland.
 Greatest divergence above = 62.3—a *Labrador skull.*
 " " below = 49.3
- VI. Average *Naso-Malar Index* = 107.9. 7 skulls. Labrador and Greenland.
 Greatest divergence above = 113.6 — a *Greenland skull.*
 " " below = 105.3 " "
 Average of *Labrador skulls* = 107.5—(more constant).
- VII. Average *Gonio-zygomatic Index* = 80.5. 7 skulls. Labrador and Greenland.
 Greatest divergence above = 89—a *Greenland skull.*
 " " below = 72.3 " "
 Average *Labrador skull* = 81.07—(most constant).
- VIII. Average *Stephano-zygomatic Index* = 80.9. Labrador and Greenland.
 Greatest divergence above = 91.5—a *Labrador skull.*
 " " below = 74.6—a *Greenland skull*
- IX. Average *Palato-maxillary Index* = 112.1. Labrador and Greenland.
 Greatest divergence above = 120—a *Greenland skull.*
 " " below = 105.3—a *Labrador skull.*
- X. Average *Horizontal Circumference* = 513.5. Labrador and Greenland.
 Greatest divergence above = 550—a *Labrador skull.*
 " " below = 476—a *Labrador skull*

TABLE OF VARIATIONS IN TEN ESKIMO SKULLS AT CAMBRIDGE.

Index or Character.	Average.	Range of Variation.	Extremes.	Labrador or Greenland.	
				Highest.	Lowest.
I. Cephalic	71.8	9.6	75.4—65.8	Labrador	Labrador.
II. Vertical	73.5	9.9	79.2—69.3	"	"
III. Orbital	88.65	16.1	94.7—78.6	"	Greenland.
IV. Nasal	45.55	9.7	50.0—40.3	"	Labrador.
V. Facial (Kollmann)	54.36	13.0	62.3—49.3	"	Greenland.
VI. Naso-malar	107.9	8.3	113.6—105.3	Greenland	"
VII. Gonio-zygomatic	80.5	6.7	89.0—72.3	"	"
VIII. Stephano-zygomatic	80.9	16.9	91.5—74.6	Labrador	"
IX. Palato-maxillary	112.1	14.7	120—105.3	Greenland	Labrador.
X. Horizontal circumference	513.5	74.0	550—476	Labrador	Labrador.

TABLE V.

Frequency of occurrence of certain anomalies.	Per cent. (figures in brackets indicate the absolute number examined).	Aboriginal Australians. Per cent.	Gorillas. Per cent.
Persistence of pars facialis of the infra-orbital suture	47.84 (209)	43.4	18.8
Pyriform shape of the foramen magnum	40 (2)	—	—
Asymmetry of the foramen magnum	2.95 (27)	—	—
Third articular facet on margin of foramen magnum	1.61 (15)	15.15	1
Eustachian spines on basal surface of petrous bones	3.63 (2)	—	—
Thickening of the body of the mandible	30 (2)	—	—

MISCELLANEOUS NOTES FURNISHED BY MR. R. G. TABER.

- I. *Names*.—No family names. Tribal names derived from district, e.g., Nackvack tribe, etc.
- II. *Religion*.—These Eskimo are all Christians. The Moravians, who are missionaries and traders, have had a station at Hebron for nearly 80 years. "Wise men" or "Conjurors" disappear when a tribe becomes Christianised. One of Taber's Eskimo was formerly a "wise man," but since becoming a Christian has retired from that profession.
- III. *Marriage*.—This is celebrated according to the Moravian rite among the Christianised Eskimo, one of the missionaries officiating; should the services of a missionary not be available, marriage would probably not be postponed on this account. Polygamy has ceased among the Christianised Eskimo. One of Taber's Eskimo had two wives formerly.
- IV. *Intermarriage, and Half-breeds*.—As a general rule half-breeds are uncommon. The Eskimo never, so far as is known, intermarry with Indians in Labrador, so the parentage of the half-breeds, as in the case of the child Nancy in Taber's party, is generally European and Eskimo. So great is the dislike of the Eskimo for the Indian, that when two parties meet at a trading post of the Hudson Bay Company, they invariably camp far apart, in some cases on different banks of a river.
- V. *Movements*.—In summer the Eskimo of Labrador wander considerable distances along the coast and over the islands; the Indians in summer also invade Labrador, retiring in winter, though in summer they may travel as far north as Cape Chudleigh.
- VI. *Climate of Labrador*.—Taber has written a detailed account of this in an American periodical called *Outing*. In winter there is daylight between 9 a.m. and 3 p.m. The general appearance of the environs of Hebron is, to judge from photographs, desolate in the extreme.
- VII. *Decrease in the Eskimo Population* is ascribed by Taber to the following influences:—Use of European dwelling-places. Cooked food; the Eskimo cook almost all food now, except certain small fish, which are eaten raw. Admixture by marriage. General changes in mode of life owing to European influence.
- VIII. *General Folklore*.—Taber is about to publish the accounts furnished by the Labrador Eskimo of the origin of the seal; of the origin of the "Northern Lights"; also a legend of a great flood.
- IX. *Kajaks*.—The Labrador model is identical, even in details, with that in use in Greenland and figured by Nansen (*Eskimo Life*). One of Taber's Eskimo, "John," said that balancing by means of the paddle was not necessary for a good kajak man, who would be quite independent of such an use of the paddle.

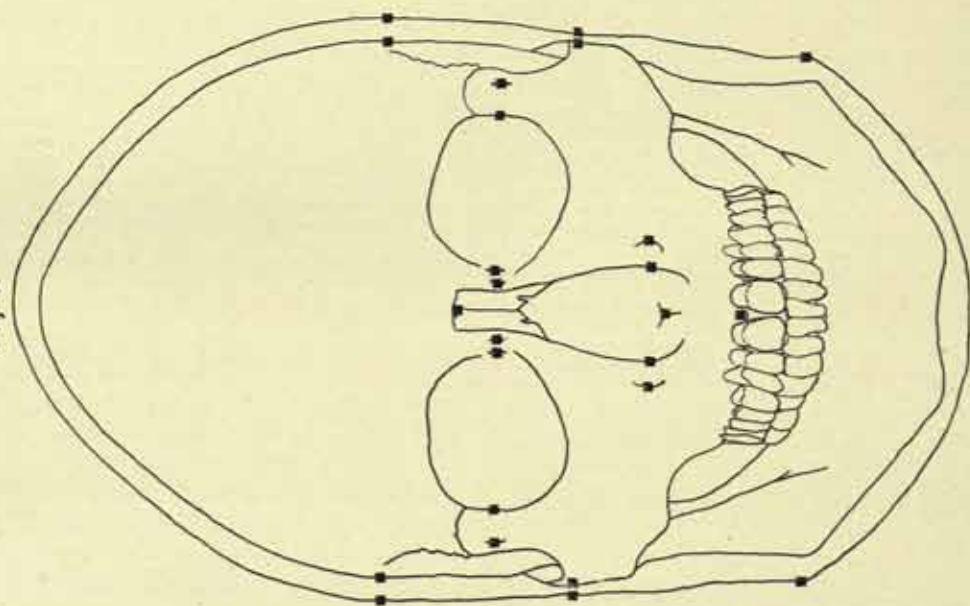
DISCUSSION.

Mr. SHRUBSALL remarked that the papers just read raised questions of considerable interest from several points of view. Physical measurements are of value as aids to the interpretation of other evidence as to the past history of the Eskimo, who are contrasted by different observers with certain of the inhabitants of Southern France in the early stone age as represented by the skeletal remains found at Chancelade, in the Dordogne, with the Fuegians and other dolichocephalic tribes of South America, and with the peoples of North-eastern Asia. To these the Eskimo present certain resemblances, most closely to the latter, the balance of evidence being in favour of their Asiatic origin.

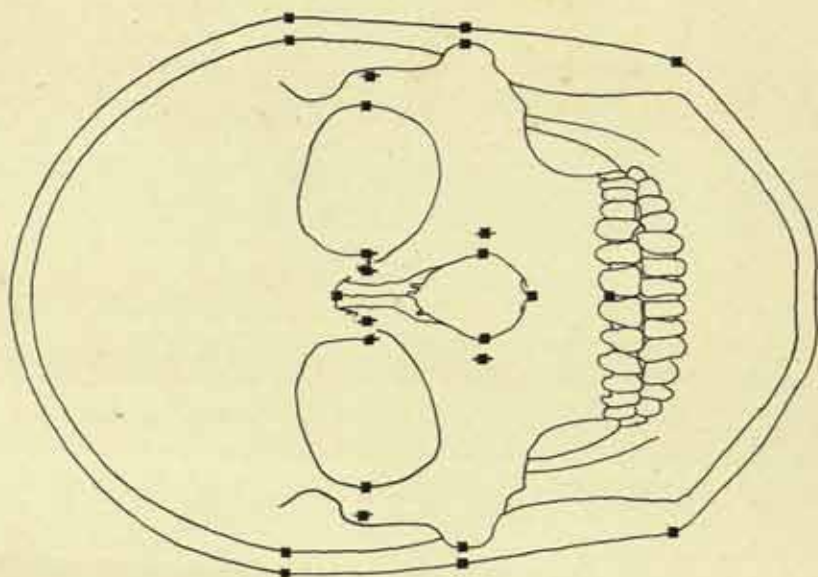
Dr. J. DENIKER, Librarian of the Jardin des Plantes, and Honorary Fellow of the Anthropological Institute, complimented the authors of the papers on the results of their investigation, and regretted that the rarity of observations hitherto makes it difficult to arrive at a definite conclusion in regard to the affinities of the Eskimo. In regard to the theory of an Asiatic origin, it should be remembered that though there are representatives of the Eskimo in Siberia, they cannot be traced back in Asia more than three or four centuries, and are therefore probably themselves of American origin. In regard to their South American affinities, he referred to the valuable work of Dr. Garson on the Fuegians, and to his own memoirs on the same people published in collaboration with Dr. Hyades,¹ and pointed out the probability that the dolichocephalic stocks of the more northerly and southerly regions of the New World, which, however, their other characters show not to have been identical with them, might at one time have been driven apart from one another into their present habitats. Referring to the works of Dr. Boas and Dr. Rink, he said that the original home of Eskimo seems to be the land between Hudson's Bay and Southern Alaska. From these regions they migrated to the east, west, and north. In this way the Labrador Eskimo of the vicinity of Hudson Bay may be very pure representatives of the Eskimo race, which is distinct from other American races, and displays some characteristics of the Ugrian race, such as short stature, dolichocephaly, the peculiar shape of the eyes, and the like.

¹ *Mission Scientifique du Cap Horn*, vii. Par P. Hyades et J. Deniker. Paris, 1891.

HEAD OF ESKIMO. ♂.
Fig. 1.



HEAD OF ESKIMO. ♀.
Fig. 2.



W.H.L.D. del. 1893. 1900.

SKULL OF A 5.5 IN. 1.7 IN. 87. MARTIN'S (LAME. 1872.)



VIEWS IN NORMA FACIALIS (NOS. 1-4) AND NORMA LATERALIS (NOS. 5-8) OF FOUR SKULLS FROM THE UNIVERSITY MUSEUM OF HUMAN ANATOMY AT KIEL.

The Eskimo cranium (Nos. 4 and 8) is very scaphoid, yet synostosis in the sagittal suture is not complete. In the three European crania (Nos. 1-5, 2-6, 3-7) the smallest of which (Nos. 2-6) is a very young skull, complete obliteration of the sagittal suture through premature synostosis is seen to have occurred without any accompanying scaphocephalic appearance. In two of the European crania (Nos. 1-5, 2-6) practically no deformation has occurred, though in the smaller of these, synostosis was very complete in all the cranial sutures. In the largest European cranium (Nos. 3-7), some distortion has been produced in the direction of acrocephaly.

These specimens afford examples of exceptions to the general rule enunciated by Virchow as to the relation between cranial growth, and synostosis of cranial sutures.

ON A COLLECTION OF CRANIA, WITH TWO SKELETONS, OF THE
MORI-ORI, OR ABORIGINES OF THE CHATHAM ISLANDS. WITH
A NOTE ON SOME CRANIA FROM THE SAME ISLANDS NOW
IN THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS.

By W. L. H. DUCKWORTH, M.A., Jesus College, Lecturer on Physical Anthropology
in the University of Cambridge.

[READ JUNE 12TH, 1900.]

THE following notes are descriptive of ten crania, with two skeletons, which have been recently added to the Anatomical Collection at Cambridge. The only information that is available respecting their provenance is to the effect that they were sent to this country by Mr. H. A. Travers, of Wellington, New Zealand. Mr. Travers's collection is mentioned by Professor Turner in the *Challenger* reports, and it is believed that the specimens now under consideration are certainly genuine. Eight appear to be male skulls, and two (with the skeletons) are probably those of females.

The description will fall into two subdivisions, in the first of which the most important characters of the specimens will be enumerated; and this will be succeeded by a brief discussion on the kind and degree of resemblance of the crania to those already treated of by others under the description of Mori-ori or Chatham Island skulls. In the first place, whereas the members of this series of ten skulls are very generally alike, they agree particularly in presenting a combination of features much more suggestive of an affinity with a Polynesian than with a Melanesian physical type. Thus the breadth of the cranium is distinctly greater (relatively) and the parietal eminences are more outstanding than is the case in typical Melanesian crania; the cranial capacity, however, does not afford a means of discrimination, though it is slightly in excess of the average value obtained from Melanesian series, the crania being in fact of moderate size. A striking feature which they share with typical Polynesian crania is a rounding off of the angle of the mandible, whereby the estimation of the value of that character in degrees is rendered more difficult than usual. The glabellar prominence is in few cases well developed, and herein, again, the affinity is with crania of Polynesian rather than of Melanesian origin. Symmetrical flattening on either side of the sagittal suture gives rise to a very distinctly pentagonal appearance in *norma occipitalis*; this has already been recorded as a characteristic of a Mori-ori skull described by Hyrtl (quoted by Turner). There is no case of a fronto-squamous articulation at the pterion, although in several cases epipteric ossicles are seen.

Finally, we may mention two classes of abnormalities, the first of which might be described as adaptive, though its real significance is not quite clear. It consists

in a tendency, which is quite marked among these skulls, to the production of bony paracondylar processes on the occipital bone. In the second class the variations are pathological and consist in extreme attrition of the teeth together with a sort of dislocation, so that the surface of the roots comes into play in the alveolar plane. Many cases of alveolar abscess were indicated by the condition of the tooth sockets. And finally, the frequency of the ravages of osteo-arthritis in the bones of the skeleton is very marked; Dr. H. A. Forbes, of Liverpool, confirms this observation from the inspection of skeletons actually in the Chatham Islands, and the skeleton of a Chatham Islander in the Dresden Anthropological Collection presents unequivocal evidence of the existence of this condition.

With the above exceptions, comparatively few abnormalities have to be noticed.

The following notes refer to the individual features of the several crania:—

- No. 1. Skull of an adult female with nearly complete skeleton. General preservation good. Few teeth remain, and these are much worn down. At the root of the left upper median incisor is a cavity, looking as if a cyst or abscess had existed here. The only other remarkable point is the conformation of the occipito-atlantic joint, which presents a rare abnormality. Paracondylar processes are present on each side, and of such a size that they articulate laterally with the articular surfaces of the atlas. Moreover, on the right side, the tip of the paracondylar process articulates with the extremity of the transverse process of the atlas. The left styloid process is perforated at its base by a foramen in addition to the normal foramen styloideum. Many signs of osteo-arthritis are seen about the pelvis and the lumbar section of the vertebral column, rendering the measurements of the bodies of lumbar vertebrae of comparatively little value.
- No. 2. Sex doubtful. Aged individual. Teeth much worn. Sagittal suture completely closed. Two parietal foramina. Small paracondylar processes present. Mastoid processes (especially the right) very small. Posterior palatine spine bifid.
- No. 3. Large male skull. A good deal weathered. The teeth are much worn. On the margin of the foramen magnum there is situate anteriorly a depression (probably for articulation with the odontoid process of the axis). The carotid canals are imperfectly closed in at the apices of the petrous bones.
- No. 4. Adolescent individual, probably a female. The third molars not yet evident. The sagittal suture is, however, almost completely closed by synostosis, but there is no trace of scaphocephaly. One large parietal foramen. The teeth are of excellent quality. On the anterior margin of the foramen magnum is a small pit, possibly for the reception of the tip of the odontoid process of the axis.

- No. 5. Skull of an adult male. The teeth in good preservation. The nasal bones are extremely reduced in size, especially in breadth. Large wormian bones at the pterion on either side.
- No. 6. Massive skull of an adult male. The mandible is thickened anteriorly to the ascending ramus so as to resemble the condition present in many mandibles of Eskimaux. There are paracondylar processes, that on the right side being small. The occipital condyles throw out projections anteriorly (*cf.* Poirier; *Traité d'Anatomie humaine*, Tome 1^{re}, p. 384).
- No. 7. Massive skull of an adult male. Teeth much worn down. The posterior palatine spine is bifid. The occipital condyles send forward processes on to the basilar process of the occipital bone.
- No. 8. Skull of an aged male. Slightly weathered. Teeth much worn and signs of an abscess cavity conterminous with the antrum of Highmore on the right. There is also a cavity of doubtful nature in connection with the socket of the left upper median incisor. The posterior palatine spine is bifid. Large paracondylar process on the right side.
- No. 9. Skull of an adult male. Weathered and platybasic. Most of facial skeleton destroyed. Many teeth lost. The chief features are the flattened areas on either side of the sagittal suture, the ruggedness of the temporal crests in that region, and the high degree of prominence of a well-marked transverse occipital torus, the latter character resembling that described by Miklouho-Maclay in an Australian cranium (*Proc. Linn. Soc. N.S.W.*, vol. viii).
- No. 10. Skull of an adult female with complete skeleton. Teeth much worn. Cavity in connection with socket of left upper lateral incisor. Signs of alveolar abscesses in margins of mandible in the region of the molar teeth. The posterior palatine spine is bifid. There is a wormian bone (epipteric ossicle) at each pterion. Incipient development of paracondylar processes is observed.

We may now turn to the second portion of the present communication and herewith inquire how far these characters and dimensions accord with accounts previously published of genuine Mori-ori crania.

Of such accounts, that written by Professor Sir William Turner in the *Challenger* reports is of first-class importance, as constituting the earliest summary of the osteological characters of these Pacific Islanders. But not less important, owing to the quantity of material dealt with and the minuteness of the investigations by which it is characterised, is the work of Dr. Scott, of Otago, on the osteology of the Maori and the Mori-ori (*Transactions of the New Zealand Institute*, vol. xxvi, 1893). In this exhaustive report the skulls of nearly fifty Mori-ori natives are described, and the resulting indices compared with those published earlier by Turner. The latter observer had at his disposal only about half the number of skulls mentioned in reference to Scott's work.

Most of the measurements made by Scott have been adopted in the present paper, and in consideration of the comparatively small number (ten) of the crania at Cambridge, comparisons will be herein instituted in the main with Scott's results, without bringing into line in every case the results of Turner unless there is a particular reason for so doing. As a matter of fact, we may sum up the matter by saying that the present crania differ in no important respects from those at the disposal of the above-mentioned authors, whose own accounts will be seen, from Scott's monograph, to be remarkably consistent. Finally, the study of the hitherto undescribed Mori-ori crania in the Museum of the Royal College of Surgeons tends to exactly the same conclusion.

For comparison of results, the table on p. 145 has been devised as the most convenient means of enabling the figures to be compared with the minimum of cross-references.

Adopting the order of arrangement followed by Scott, the cranial capacity will be the first subject of comparison. From the table it appears that in both series the average value for specimens of both sexes would be designated as mesocephalic, but that when males alone are considered, the designation must be megacephalic in Scott's series and mesocephalic in the Cambridge collection. The difference, in the case of males alone, is not great (19 c.c.), and in the combined data for skulls of both sexes there is practically identity in the results. The range of variation is represented by the figure 395(10) in the Cambridge series, as against 365(29) for males and 465(38) for both sexes in Scott's records. Finally, the Cambridge series contains one specimen of exceptionally high capacity similar to those mentioned by Scott, as having been recorded by De Quatrefages and Hamy (average of three male skulls 1,600 c.c.); this specimen at Cambridge has a capacity of 1,685 c.c. (No. 3). The small number (two) of the female skulls at Cambridge scarcely justifies detailed comparison of the averages obtained from their measurements with the more extensive series recorded by Scott.

In the succeeding indices the agreement between the two sets of figures is quite remarkable; in three indices, viz., nasal, gnathic (alveolar), and palatomaxillary, the accordance would have been probably even greater than is actually the case were it not for the weathering of the bones, which has for one of its results to render accurate measurements unusually hard to obtain. At the same time, the difference might almost be accounted for by the difference in number of the specimens. Such agreement affords strong evidence in favour of the authenticity of the Cambridge specimens.

One or two indices and measurements mentioned by Scott have not been included in the table, and are more conveniently referred to here. In the first place, the index of the foramen magnum yielded Scott the following figures:—Average 87.3(48) for the sexes taken together; with this we can compare the corresponding figure for the Cambridge skulls, viz., 90.5(10) with a range of 35.8 units, as against 23.5 in Scott's observations. Secondly, the ophryo-spino-auricular angle gives the results. (See p. 146.)

In this table the figures within the small brackets denote the number of skulls available for statistical purposes.	All available data.	Skulls of both sexes.	Skulls of males.	Skulls of both sexes.					
				Distribution into groups.					
				Totals.	Per cent.	Totals.	Per cent.	Totals.	Per cent.
Character.	Cranial capacity.			Megacephalic.		Mesocephalic.		Microcephalic.	
Scott's series	1460(α)	1416(α)	1455(α)	15	39.5	13	34.2	10	26.3
Cambridge series	1452.1(α)*	1415(α)	1436(α)	3	30	2	20	5	50
Character.	Cephalic Index.			Brachycephalic.		Mesaticephalic.		Dolichocephalic.	
Scott's series	76.1(α)	76.3(α)	76.3(α)	1	2.5	31	77.5	8	20
Cambridge series	76.4(α)*	78(α)	78.1(α)	2	20	7	70	1	10
Character.	Vertical Index.			Akrocephalic.		Metriocephalic.		Tapeinocephalic.	
Scott's series	?	72.7(α)	72.6(α)	2	4.9	21	51.2	18	43.9
Cambridge series	72.6(α)*	72.5(α)	72.2(α)	0	0	7	70	3	30
Character.	Orbital Index.			Megasemic.		Mesosemic.		Microsemic.	
Scott's series ...	90.1(α)	89(α)	88.6(α)	20	47.6	18	42.9	4	9.5
Cambridge series	89.8(α)*	87.8(α)	87.7(α)	4	44.5	4	44.5	1	11
Character.	Nasal Index.			Platyrrhine.		Mesorrhine.		Leptorrhine.	
Scott's series	46.8(α)	46.8(α)	46.1(α)	0	0	15	35.7	27	64.3
Cambridge series	46.5(α)*	44.6(α)	44.3(α)	0	0	2	22.4	7	77.6
Character.	Gnathic Index.			Prognathic.		Mesognathic.		Orthognathic.	
Scott's series ...	97.6(α)	97.7(α)	97.8(α)	0	0	22	53.7	19	46.3
Cambridge series	97.3(α)*	96(α)	96.4(α)	0	0	2	22.4	7	77.6
Character.	Palatomaxillary Index.			Brachyuranic.		Mesuranic.		Dolichuranic.	
Scott's series	119.5(α)	120.8(α)	120.8(α)	35	89.7	4	10.3	0	0
Cambridge series	118.9(α)*	116.3(α)	115.4(α)	8	80	0	0	2(7)	20(7)

* It must be noticed that the figures thus marked refer to data collected from all available sources, i.e., Scott's results from all sources combined with those yielded by the Cambridge specimens: for economy of space it was thought permissible to place these figures in the positions they now occupy, although, as will be seen, those particular lines are otherwise exclusively devoted to the Cambridge specimens.

		Male.		Both sexes.	
		No.	Average.	No.	Average.
Scott's observations	...	32	67°	42	67° 30'
Cambridge series	...	7	67° 30'	9	68°

The nearness of these average results is the more striking when it is remembered that Scott's measurements were made with the aid of Broca's goniometer, while in the case of the Cambridge specimens the angles were measured after the including lines had been drawn through the several points projected by means of Broca's stereograph.

In considering the relation of the basi-nasal length to the mesial vertical circumference, we find that the former dimension is in the Cambridge specimens 25·3 per cent. of the curve over the vertex from basion to nasion, as compared with 24·7 per cent., which is recorded by Scott as the corresponding figure in his series.

The data resulting from the measurements of the several segments of the median sagittal arc may be summarised in the following table:—

Description of Specimens.	Males (Scott).	Approximate corresponding frequency in the whole Cambridge series.	Whole Cambridge series, actual data.	Males (Scott).	Approximate corresponding frequency in the Cambridge series (males only).	Cambridge series (males only), actual data.
F > O	22(2)	26(2)	8(2)	22(2)	28(2)	7(2)
F > P or O	20(2)	22(2)	7(2)	20(2)	20(2)	5(2)
P > F „ O	5(2)	6(2)	2(2)	5(2)	8(2)	2(2)
P < F „ O	13(2)	16(2)	5(2)	13(2)	16(2)	4(2)
O > F „ P	5(2)	3(2)	1(2)	5(2)	4(2)	1(2)
O < F „ P	16(2)	10(2)	3(2)	16(2)	12(2)	3(2)

EXPLANATORY NOTE.—F, P, and O indicate the respective lengths of the frontal, parietal, and occipital arcs. In modifying the data yielded by the Cambridge specimens, in order to make a closer comparison with Scott's figures, fractions have been ignored, and the nearest whole number has been recorded. This will explain what might otherwise be considered as errors.

From which one concludes that the two series are extremely alike.

From the measurements, we may now turn to a number of points of descriptive anatomy dealt with by Scott, the first whereof to be considered is the general shape of the cranial vault. Herein the Cambridge specimens entirely agree with the description provided by Scott; the same remark applies to the sutures,

but no case of an interparietal bone occurred (among Scott's forty-nine skulls). As regards the region of the pterion, the new series presents five ossicles in this situation in the *ten* skulls examined (Scott: twenty-six in nineteen skulls). Other wormian bones are slightly less frequent than in Scott's series. Scott mentions the occurrence of paramastoid processes on one side or both in each of four skulls (? out of forty-nine). It may be possible that the term paramastoid includes processes that we should call paracondylar. However this may be, we noticed no unusual paramastoid processes, but in five skulls unusually well developed paracondylar processes are seen (see especially No. 10), and we may now allude to the splendid collection of nearly seventy Mori-ori crania in the Museum of the Royal College of Surgeons; among these a long paracondylar process occurred once and on one side only. Aural exostoses are not to be seen in the Cambridge series, but one specimen at the College of Surgeons presents this condition. Out of seven of the (ten) Cambridge specimens, there are four with absence or closure of the postcondylar foramen on both sides, and in the other three this foramen exists on one side only. Scott gives its frequency of occurrence as twenty-three (? out of forty-nine skulls), on one side only, and complete absence in eight cases. In two male skulls at Cambridge the massive transverse occipital torus noted by Scott is present. The position of equilibrium of the Cambridge crania may be summarised as: anterior mastoid, four out of ten (Scott: one in forty-nine); posterior mastoid, four out of ten (Scott: eleven out of forty-nine); anterior condylar, two out of ten (Scott: four out of forty-nine). The pterygo-spinous foramen of Civinini is not seen in one of the Cambridge specimens, even in an incomplete form (Scott met with it—incompletely developed, however—in six cases).

The nasal bones conform precisely to Scott's description. Out of the ten Cambridge skulls, four are oxy-craspedote, and five bothro-craspedote (Scott says that the nasal margin is "rounded off" in twenty out of forty-nine skulls). As regards the so-called third occipital condyle, a faint marking in one of the Cambridge specimens suggests that an articulation may have existed in the situation of this process. Much more distinct are the facets shown by two skulls out of the sixty-five at the College of Surgeons. Of the lacrymal bone, it can only be said that while two (in the same skull) are fenestrated, this tendency, as well as that to the formation of a fronto-maxillary articulation within the orbit, is less marked in the ten Cambridge specimens than in Scott's series. The mandible has already been commented on.

It remains to notice the usage of the teeth, and we may mention that Scott remarks that the Mori-ori and Maori crania agree closely in this particular. Without quoting his description in detail, we may say that the curious usage and partial dislocation referred to by Scott and mentioned in the earlier part of this communication was observed by Scott in Maori as well as Mori-ori crania, and can also be seen in sixteen out of sixty-eight specimens in the College of Surgeons (the Mori-ori crania of the Barnard-Davis collection are here included). So, too, signs of alveolar abscesses, similar to those noted in the Cambridge specimens, were seen by

Scott in the crania of his collection. One of the Cambridge skulls shows a curious pit behind the third upper molar on both sides, which may have contained an additional tooth, but no trace of such a supernumerary structure remains.¹ In one adult skull at the College of Surgeons (No. 765N) the third molar is diminutive.

Finally, it may be mentioned that an asymmetrical condition of the foramen magnum, and a tendency to the production of exostoses in the form of processes and bony bars (*cf.* Grünbaum, *Journal of Anatomy and Physiology*, vol. xxv), near its posterior and lateral margins, characterise the specimens at Cambridge as well as those at the College of Surgeons.

To sum up, then, the chief value of the new series of Mori-ori crania will be based on the corroborative evidence they afford of the generalisations so often referred to in the course of this paper. At the same time, we are now in a position to regard them as quite typical specimens of the Mori-ori race, the difference of whose cranial characteristics from the Maori have been thus summed up by Scott, in speaking of the Mori-ori skull:—"It differs from the Maori skull mainly in its lesser height, both absolute and relative to length and breadth, the greater excess of the parietal over the frontal width, the higher orbits, and the narrower nasal opening. The depressed and retreating forehead is also a very marked feature of many Mori-ori skulls. It is slightly broader relatively to its length, and somewhat more prognathous. The cranial capacity is also somewhat less. But, as already pointed out, there is often a very close resemblance between Maori and Mori-ori skulls. The variation of the indices, though somewhat more restricted than with the Maoris, is still considerable, and points, like the traditions of the people, to an origin from the two great Pacific stocks. The different types of Mori-ori skull have been already sufficiently described."

From the study of the skulls we must now turn to that of the other bones of the skeleton, and the following notes embody the results obtained from observation of the two skeletons now at Cambridge:—

The Scapular Indices are represented by figures higher than those yielded by scapulae of Europeans or Polynesians, but on the other hand are respectively lesser and greater than the average index afforded by Melanesian scapulae.

The Clavicular Index.—Comparative data are still scanty, but it may be mentioned that these indices exceed those of European females and even of negroes by a good deal.

Platynemia.—The skeleton No. 10 shows a distinct degree of platynemia. The other skeleton, however, does not possess this character, so that no reliance can be placed on this indication.

Platymeria.—These indices show an extreme degree of platymeria.

In comparing the foregoing data with the records provided by Scott, it may be

¹ A similar pit occurs in the upper maxilla of an orang-utan cranium in the Anthropological Institute at Munich: it is the more remarkable since this orang cranium possesses already two supernumerary molar teeth immediately in front of the pit referred to.

noticed that the scapulae of the Cambridge skeletons are broader and therefore of an inferior type to those measured by Scott; that the degree of platycnemia, on the other hand, is less marked in the Cambridge specimens than in Scott's series; and that the differences that may exist between the right and left limbs of the same individual are so considerable as to seriously discount the value of conclusions drawn from any but very large series of measurements.

Stature.—The indication here is of extremely small stature—1,470 mm. and 1,441 mm. respectively. Allowance being duly made for the sex, the indication is rather against the skeletons having belonged to the ordinary or unmixed Polynesian type.

In conclusion, the evidence from the skeletons possesses little value in determining the race to which the individuals belonged. At least, however, one can note the *general* absence of signs of inferiority (or what are usually regarded as possessing such a significance), while the extremely diminutive stature of these females might possibly be cited as an exception to such a general indication.

The pelvic indices place the specimens in the mesatipellic group of Turner. It should be remarked that whereas the female pelvis in any case affords but little evidence of weight in assigning to any particular race a given skeleton, the indication here is still further obscured in the case of No. 1 (A) owing to the occurrence of osteo-arthritis. It remains to be said that Turner is inclined to place Melanesians in the mesatipellic group, while he supposed that Polynesians would probably come within the dolichopellic division. The fact that this index brings the Chatham Islands skeletons into relation with the Melanesians, while their cranial characters are those of Polynesians, need not be regarded as of great moment in the present state of our knowledge of the subject. On the other hand, Scott records the indices of two male and one female Mori-ori pelvises, and these are all platypellic.

The proportions of the sacra place these in the platyhieric group, the influence of sex being felt herein. The index of B is very high and only surpassed in Turner's records by that of the sacrum of a Hindu female, viz., 127. Scott remarks that of three sacra measured by him, one (a male) was platyhieric; the two others (male and female respectively) were at the upper limit of the subplatyhieric group.

As regards the lumbar indices, disease has much modified the shapes of the lumbar centra of No. 1, hence no doubt the figure 106.4, which falls in with those found in non-pathological spines of some Australians and Tasmanians. On the other hand, the 93.2 for No. 10 is practically identical with the average figure deduced from observations on twenty-three Irish females (Cunningham, quoted by Turner).

The radio-humeral and tibio-femoral indices may be considered together. They would place the skeletons either actually or almost in the same group as Polynesians or Melanesians, according to Turner. No conformation indicating inferiority is denoted by such an association.

TABLE I.

Specimen No.	Age.										Average.	Range.
	1	2	3	4	5	6	7	8	9	10		
Sex.	♀	♂	♂	♀	♂	♂	♂	♂	♂	♀		
Age.	Adult.	Adult.	Adult.	Adult.	Adult.	Adult.	Adult.	Adult.	Adult.	Adult.		
Maximum length ...	180	176	194	177	186	174	180	186	194	178	182.5	194—174
Maximum breadth ...	144	140	148	144	153	138	136	136	147	139	142.5	153—136
Ophryo-iniac length ...	168	163	180	166	178	168	176	172	189	169	173	189—166
Basal-bregmatic height ...	134	123	140	128	132	131	134	139	129	135	132.5	140—123
Nasal height ...	51	54	61	52	56	54	54	53	?	54	54.2	61—51
Nasal width ...	96	93	98	24	21	24	24	23	?	23	24.2	28—21
Orbital height ...	35	37	38	34	38	37	35	36	?	37	36.3	38—34
Orbital width ...	39	43	43	40	40	40	41	44	?	37	40.7	44—37
Basal-nasal length ...	100	96	107	96	100	105	101	103	106	98	101.2	107—96
Basal-alveolar length ...	97	94	98	98	103	99	96	100	?	90	97.2	103—90
Horizontal circumference ...	511	494	539	505	536	498	498	510	546	499	513.6	539—494
Jugo-nasal width ...	96	99	99	95	96	97	98	98	?	91	96.5	99—91
Jugo-nasal arc ...	106	110	111	107	106	108	105	106	?	101	106.7	111—101
Cephalic index ...	80	79.5	76.3	81.4	82.3	79.3	75.6	73.1	75.8	78.1	78*	82.3—73.1
Altitudinal index ...	74.4	69.9	72.2	72.3	71	75.3	74.4	74.7	66.5	75.8	72.5*	75.8—66.5
Alveolar index ...	97	97.9	91.6	102.1	103	94.3	95	97.1	?	91.8	96*	103—91.6
Nasal index ...	51	42.6	45.9	46	37.5	44.4	44.4	48.2	?	42.6	44.6*	51—37.5
Orbital index ...	89.7	86	88.4	85	95	92.5	85.4	81.8	?	100	87.8*	100—81.8
Jugo-nasal index ...	110.4	111.2	112.3	112.5	110.4	111.3	107.1	108.1	?	110.9	110.5*	112.5—107.1
Cranial capacity ...	1,315	1,300	1,685	1,445	1,590	1,310	1,290	1,345	1,520	1,350	1,415	1,290—1,685
Palato-maxillary index ...	121.5	104.1	115.8	117.3	109	115.6	121.1	116	124	123	116.3*	104.1—124
Index of the foramen magnum ...	90.7	79.3	100	115.1	96.9	91.4	84.8	81.8	85.7	79.4	90.5	79.3—115.1
Occipito-spino-auricular angle ...	71° 30'	66° 30'	66° 30'	69	67	66° 30'	70° 30'	66° 30'	?	68°	68°	66° 30'—71° 30'
Foramen magnum : sagittal diameter ...	32	34	35	33	32	35	33	33	35	34	33.6	32—35
Foramen magnum : transverse diameter ...	29	27	35	35	31	32	28	27	30	27	30.4	27—38
Palato-maxillary length ...	51	48	57	52	55	51	52	56	50	?	52.4	48—57
Palato-maxillary breadth ...	62	150	66	61	60	59	63	65	62	157	62.2	59—66
Frontal arc ...	127	124	134	125	134	116	125	128	123	123	125.9	116—134
Parietal arc ...	119	110	130	119	121	119	113	106	131	122	119	106—131
Occipital arc : supra-iniac part ...	77	73	80	74	65	67	75	96	70	66	74.3	65—96
Occipital arc : infra-iniac part ...	46	39	47	41	58	41	49	45	58	54	47.8	39—58
Total sagittal arc ...	369	346	391	359	378	343	362	375	382	365	367	343—391

* Index of the averages, and not average of the indices.

The intermembral index shows that No. 1 (A) has similar proportions to the average European, the index of No. 10 (B) being a little higher (*i.e.*, with slightly and only very slightly longer upper extremity). The effect of stature may be responsible for the difference.

As regards the femoro-humeral index, both skeletons show figures (73.5 and 71.7) but little removed from the average figure (72.2) given for Europeans (Broca).

Little more can thus be added to the remarks of Scott, who from the observation of five skeletons concludes that these "show in most instances a very close correspondence with what we find among the Maoris."

Mori-ori Crania.

Tables I, II and III present the principal dimensions, etc., of the crania and skeletons. Table I, on p. 150, gives those of the crania.

TABLE II.—MORI-ORI SKELETONS.

A. With Cranium No. 1.
B. With Cranium No. 10.

Dimensions whence Indices are calculated.	A.	B.
Length : humerus	285	271
" radius	211	217
" humerus and radius	496	488
" femur	388	378
" tibia	322	307
" femur and tibia	710	685
" clavicle	141	138
Scapula : height	145	131
breadth	99	94
Sacrum : length	107	89
breadth	125	113
Pelvic brim : conjugate	125	118
transverse	135	129
Tibia : R. { antero-posterior	27	27
{ transverse	21	18
L. { antero-posterior	27	30
{ transverse	21	18
Femur : R. { antero-posterior	21	21
{ transverse	29	30
L. { antero-posterior	21	21
{ transverse	30	30
Lumbar vertebrae : sum of anterior diameters	125	133*
sum of posterior diameters	133	124*
Total height of pelvis	185 ?	182 ?
Total breadth of pelvis	255	237
Pubo-ischiatic length	94	90
Scapula : infraspinous length : right side	108	104
infraspinous length : left side	109	104
Middle of shaft of femur : sagittal diameter on R.	23	23
sagittal diameter on L.	24	23
Transverse diameter on R.	24	24
Transverse diameter on L.	24	24

TABLE III.—THE SAME.

A. With Cranium No. 1.
B. With Cranium No. 10.

Indices.	A.	B.
Pelvic (Brim)	92.5	91.4
Sacral	116.8	126.9
Lumbar	106.4	93.2
Radio-humeral	74	76.4
Tibio-femoral	83	81.2
Intermembral	69.8	71.2
Humero-femoral	73.5	71.7
Scapular	68.2	71.7
Clavicular	49.4	50.9
Tibia (platycnemis)	77.7	66.6 (60 L.)
Femur platymeria	{ 72.4 R. and 70 L. }	{ 70 R. and L. }
Stature, from femur	1,470	1,441
Total pelvic	72.5	76.6
Scapular, infraspinous : Right	91.7	90.4
Left	90.8	90.4
Index of cavity of pelvis	69.6	68.7
Index of femur at middle of the shaft ... }	{ 95 100 }	{ 100 100 }

* B, pathological.

TABLE IV.

To indicate some characters presented by Mori-ori crania in the Museum of the Royal College of Surgeons. The total number examined was sixty-five.

Character.	No. of examples.	Catalogue Nos. of specimens presenting the character.	Percentage.
Asymmetry of foramen magnum	5	761—762—763—765 E—765 Zh.	7.69
Third occipital articular surface....	2	765 Zm—765 Zq.	3.07
Scaphocephaly without synostosis in sagittal suture.	1	765 K.	1.53
Aural exostoses	1	765 N	1.53
Paracondylar process as in No. 10 Cambridge.	1	765 R	1.53
Excessive wear (with partial dislocation) of molar teeth.	13	765 L.. M.. U.. Zb.. Zc.. Zg.. Zh.. Zv.. Zw.. Zx.. Zy.. Zz and three others from the Barnard Davis collection.	20
Very Melanesian in appearance....	1	765 Zs.	1.53
Strong resemblance to Maori skull at Cambridge.	1	765 C.	1.53

DISCUSSION.

The PRESIDENT expressed his interest in hearing that the physical evidence was in favour of a Polynesian origin for the Mori-ori, for the reason that their arms and implements were distinctly Polynesian in type. Unfortunately, however, there was no greater certainty as to the true Mori-ori origin of these implements than existed in the case of the skulls. It was clearly possible that, although found in the Chatham Islands, the former might be the work of invading Maoris. It must be confessed, however, that the implements from the Chatham Islands had a different style from those found in New Zealand.

Mr. SHREWSALL observed that the study of Mori-ori remains is most interesting and constitutes a very essential contribution towards a complete physical history of the races of the Pacific islands. The task is rendered the more difficult by two factors; firstly, by the intrinsic resemblances between the Mori-ori and Maori tribes, both being members of the same Polynesian stock; and secondly, by overrunning of the Chatham Islands in 1835 by Maori invaders from the Taranaki district of New Zealand, with the result that it is now no easy matter to decide for certain as to the origin of any given skeletal remains which may be discovered.

THE SYSTEM OF WRITING IN ANCIENT EGYPT.



BY F. LL. GRIFFITH.

THE general appearance of Egyptian hieroglyphic writing is very well known, and the nature of it has often been explained. But it is a subject of some importance, and one which still repays close investigation. On seeing a well cut or painted inscription, even those who are not Egyptologists often feel a desire to know the meaning of its signs and groups, and to understand how the little pictures convey that meaning. If pressed for explanations, the specialist has to avow that in a vast number of cases he cannot give sound and exhaustive reasons for his interpretations; he knows that the Egyptians attached such and such meaning or significance to a sign, but often he does not understand the connection between the picture and the sense, nor does he know what the sign represents pictorially. In the last few years Egyptologists, each of them following his own bent, have endeavoured to grapple more closely with the problems that confront them, to trace, for instance, the history of the arts and crafts in Egypt by means of scientific excavations, or by working on the materials in museums, and to ascertain the principles which underlie the Egyptian language and its development, and so at length to obtain facts in place of the vague approximations or serious misconceptions of their predecessors. In short, they have already begun to crown the labours of Champollion, de Rouge, Brugsch, and Lepsius—to mention only the leading names among a crowd of scientific or enthusiastic workers—by putting the subject of Egyptology on a scientific basis so sure that labourers in other fields may begin to employ its results without fear that these will quickly be contradicted by the progress of further research. In 1802 a Swede, Akerblad, commenced the decipherment of Egyptian; now, at the commencement of the twentieth century, the subject and the study are rapidly transforming themselves from uncertainties and guess work to precise knowledge and exact investigation.


One branch of Egyptology requiring such investigation is the *history of the writing*. Professor Petrie has shown how finely detailed hieroglyphs of the Old Empire tombs can instruct us as to the material civilisation of the contemporary Egyptians, though the artist who drew them had intended them to record in decorative style only dry names and formulae. Organised endeavours are now being made (especially through the agency of the Archaeological Survey of the Egypt Exploration Fund) to collect materials for a thorough investiga-





tion of the hieroglyphic writing, and some of the main results at present attained form the subject of the present paper.

The writing is made up of ideographic and phonetic elements; in other words, the pictures appeal in a sense both to the eye and to the ear. They are employed as word-signs to express whole words, as phonograms to express sounds as parts of words, and as determinatives. (A determinative, it may be explained, is written after a word to indicate its meaning pictorially when that might be otherwise uncertain.)








Before dealing further with these three functions of hieroglyphs, we will notice one particular form of phonogram from which much might have been expected, that is, the phonogram representing a single sound—the ALPHABETIC sign. The Egyptians never took full advantage of this great discovery. At a very early period they developed a practice of representing single sounds by means of an alphabet of twenty-five letters, which would have enabled them, had they so chosen, to write solely in these alphabetic signs, with a determinative added at the end of each word. Large numbers of words are actually found alphabetically spelled, especially in early times. The use of alphabetic signs probably originated in the desire to express separately the formative and flexional consonants that modified the meaning of words, and the signs being found useful, their employment rapidly extended. But no advance was ever made towards exclusive alphabetic spelling; its adoption would have meant a complete change in the old system, and this was not to be expected from so conservative a people as the ancient Egyptians, who attributed their writing to the invention of the god Thoth himself. Moreover, the artist-scribes fully appreciated the decorative effect of hieroglyphic writing; to have limited their choice of signs by alphabetic spelling would have constituted a serious loss to that highly important body. On the other hand, the abbreviation of writing towards a cursive form employed for the longer text seems, as a matter of fact, to have led the scribes into greater and greater complications. They sought clearness and definition, not in simplicity, but by multiplying checks on error; and more or less they achieved their purpose. But the results were extremely cumbersome; for example, *hs* "praise," is written  *h-hs-s*, i.e., with three phonetic signs followed by the determinative of speech. And, to take an extreme instance, the syllable *nw*, in ordinary hieroglyphics of the middle period, is often written  *n-nw-nw-w*, i.e., with four phonetic signs. Any single sign in abbreviated or cursive writing might easily be mistaken for some other in the immense signary, and as long as the recognition of a word depended on the precise recognition of a single sign rapid writing would easily be misread. But when words were spelled by a number of signs, so grouped as to be unmistakable however clumsily drawn, the scribe could wield his pen freely, and was satisfied.

The alphabet rendered only consonants and semi-consonants. The nature











of the language was such that the inflexions were produced partly by internal vowel changes, partly by additions of consonants and vowels at the beginning or end of the root. When a word-sign only was employed to represent a word, it would be very difficult to indicate the internal vowel changes. In times beyond our ken, presumably no changes whatever were shown, the simple word-sign being employed for all forms of a root; but in course of time it became customary to mark the flexional and other additional consonants by separate signs. These consonants were the feminine ending *t*, a noun-formative *m*—prefixed,—and *s*, the causative prefix to verbs, all three being of great importance for pronunciation and the expression of meaning. Similarly, the pronominal suffixes had to be expressed by alphabetic signs. Internal changes of vocalization were so much more difficult to indicate than external additions of consonants that no attempt seems ever to have been made in that direction. It may be imagined that external vowel changes would, however, be shown, and indeed there is evidence of it. A prefixed vowel, though generally not marked at all, was in some texts—both early and late—indicated by , which here has

the function of the Arabic *hamza*. Whether the endings , , ,  represent vowel endings *u*, *i*, or whether they retain their usual semi-consonantal values, *w*, *y*, is at present uncertain. It is probable that when serving in certain positions as radicals, these letters were pronounced as vowels, and hence the development of their use as vowel-endings would easily arise.


To return to the classes of the signs. Primarily WORD-SIGNS represent the name of the objects or actions pictured by them. By transference word-signs can come to represent any word having the same consonantal root.







PHONOGRAMS representing sounds which are used as parts of words are derived from word-signs; until a very late period these were limited in number. They fall into two groups: 1st, phonograms representing single sounds, which we may call *alphabetic or uniliteral*; 2ndly, those representing two sounds, which we may call *biliteral or "syllabic."* To take instances of each: the arm  is the name for "arm," or rather "hand" ('); it is also transferred as word-sign for "district"; as an alphabetic phonogram it stands for ' (Heb. *ṣ*) in a multitude of words. As an instance of the second class of phonograms we have the draughtboard  set with its pieces; this pictures the idea of "being set," *mn*, and is the word-sign for "firm," "established," also by transference, it is used as the name *mn*, a kind of measure, and for the word *mn* meaning "a certain person," "quidam," etc., etc., words having each the same radical consonants (*m*, *n*) as *mn*, "established." As a phonogram  enters into the spelling of hundreds of words, e.g., *mnḥ*   "chisel,"   the name of the god Amon.

DETERMINATIVES may be either specific or general, e.g., the determinative of the word for the African horizontal-horned sheep (*Ovis tragelaphus*) may be

the specific figure of that sheep  or the general figure of the hide of an animal , which serves as determinative for quadrupeds of all kinds, and even for four-footed reptiles. Of course, most of the common determinatives are specific or general according to their use. The following examples are very frequent:  determinative of proper names of men;  ditto of women;  determinative of peoples;  of eating;  of speaking;  of sitting;  of falling;  of violence.

A single sign may combine all the functions of word-signs, phonograms, and determinatives.

As regards word-signs, in general the connection of the meaning of the word with the picture is obvious enough once it is pointed out; but there are often difficulties in discovering it, the first being to identify the action or object depicted; the second, to find the word which formed the connecting link between the picture and its word-sign value. For instance, the sign  is pretty clearly a basket when depicted in colour with the detail of woven rushes; its word-sign value *nb*, signifying "master," "all," "swim," "melt," has long been recognised, but out of all the long miles of hieroglyphic and hieratic writing that are known to us, the key to this value is preserved only in a single passage of the Pyramid texts, and it is simply this: the name of a rush basket is *nb.t*. As for the *t* in *nb.t*, it is only the feminine termination of the word, not a radical letter, and so can be neglected.

As a general rule it is the root of a name, and that in its shortest form, which determines the phonetic value of the sign representing it. Hence, flexional consonants are disregarded in the matter. Not only so, but when a consonant is doubled in the root it is reduced to a single consonant in the derived word-sign, at any rate when the latter is used (by transference) as a phonogram. Very often also the weak consonants and semi-vowels are thrown out. Thus, *eg.*, the simple wooden hoe, ,  *hnn*, is word-sign for its name, but as a phonogram has the value *hn*—cf.   *hnb*, "land," etc. , a rope handle, probably *θθ* or *yθθ*, originally meaning "pull," "seize," is alphabetic for simply *θ*. , a slope of ground, from the root *q'* or *qy* "be high," is alphabetic simply for *q*.

It has often been supposed that the Egyptian alphabet was acrophonic in origin, i.e., that the first sound in the name of the pictured object or subject was chosen as the alphabetic value of the sign. Some Coptic names seemed to favour this theory, but a knowledge of the early language has overthrown the few acrophonic derivations which had been proposed, and has already in some cases revealed the true derivations, showing that the values of the alphabetic signs were obtained in the same way as those of the biliterals. But the subject is still obscure in many of its details.

As the Egyptian roots seldom exceed three letters, there was little need for word-signs of more than three letters, and none for phonograms of more than two. There is, however, one phonogram of obscure origin, used for a grammatical ending only, which possibly contains three consonants, namely, the eagle, *tyw*.

Having thus indicated the nature of the Egyptian writing and something of the uses and origins of the signs, let us consider briefly what changes took place during the thirty or forty centuries for which we have monumental evidence of its use. If we compare the short inscriptions of the First Dynasty, which Professor Petrie has this year found in such numbers at Abydos, with inscriptions of what may be called the classical period and onwards, even to Roman times, we recognise that the system upon which all are drawn up is essentially the same. No new principle whatever has been introduced. The main noticeable point of difference is that in the later writing the spelling is far ampler, and consequently the writing is vastly more free; and while in the First Dynasty, and indeed throughout the Old Kingdom, determinatives were very sparingly used, in late times they abounded. By the time of the Sixth Dynasty long texts were commonly written and inscribed, and in the Middle Kingdom the Egyptian hieroglyphic system had assumed its most perfect shape for clearness and neatness. Apart from certain archaistic revivals or lapses into vulgar modes, this was the form which henceforth served as the model for monumental spelling. There were, of course, periods of decline, during which writing suffered much. Monumental hieroglyphs being at a discount, the origins of the signs were forgotten; but periods of prosperity, by reviving the demand for decoration, restored the art of hieroglyphic writing nearly to the height from which it had fallen. In the great decline of taste under Ptolemaic and Roman rule the inscriptions are crowded with fantastic inventions of new values and new signs.

As for cursive writing, this was practised as far back as the First Dynasty; by the end of the Old Kingdom it was freely used, and persisted for religious texts into Ptolemaic times. It is known to us as *HIERATIC*. About 1000 B.C. a small and highly developed cursive known as *DEMOTIC* began to be employed and continued in use for business purposes until Egypt, under foreign rulers, became bilingual. Then it became manifest that the simple Greek alphabet, with its full notation of vowels and phonetic spelling, had great advantages over the vowel-less and clumsy groups of the native script. In the second century A.D. astrologers and others, who were probably not natives of Egypt, essayed to render the Egyptian language in the Greek character with the aid of a few signs borrowed from the demotic alphabet to express special Egyptian sounds, such as *dj*, *tsh*, *kh*, *f*, and hard *h*. Thus the foundations of *COPTIC* writing were laid. This change was significant of the waning power of the old religion, and in the fourth century A.D. Christianity, triumphing over paganism, quickly exterminated the ancient system of writing altogether, and Coptic became universal.

With the recent discoveries of Mr. Arthur Evans in mind, none would dare to prophesy merely negative results from the archaeology of the future as regards the history of writing; but as yet we have no clear evidence that Egyptian writing was either borrowed from or borrowed by any country outside the Nile Valley. Conquest and commerce occasionally carried it into Syria, Asia Minor, the Greek Islands and elsewhere, but we fail to find it established anywhere beyond Egypt except in Ethiopia. In that country it acquired a special character, and may have made an important advance in a form of demotic, long known but as yet undeciphered. If the early stages of Egyptian writing were developed in Egypt itself, it is curious that during the whole of the historic period it failed to develop any new features in the land of its birth; yet it certainly has the appearance of being entirely native to the valley of the Nile.

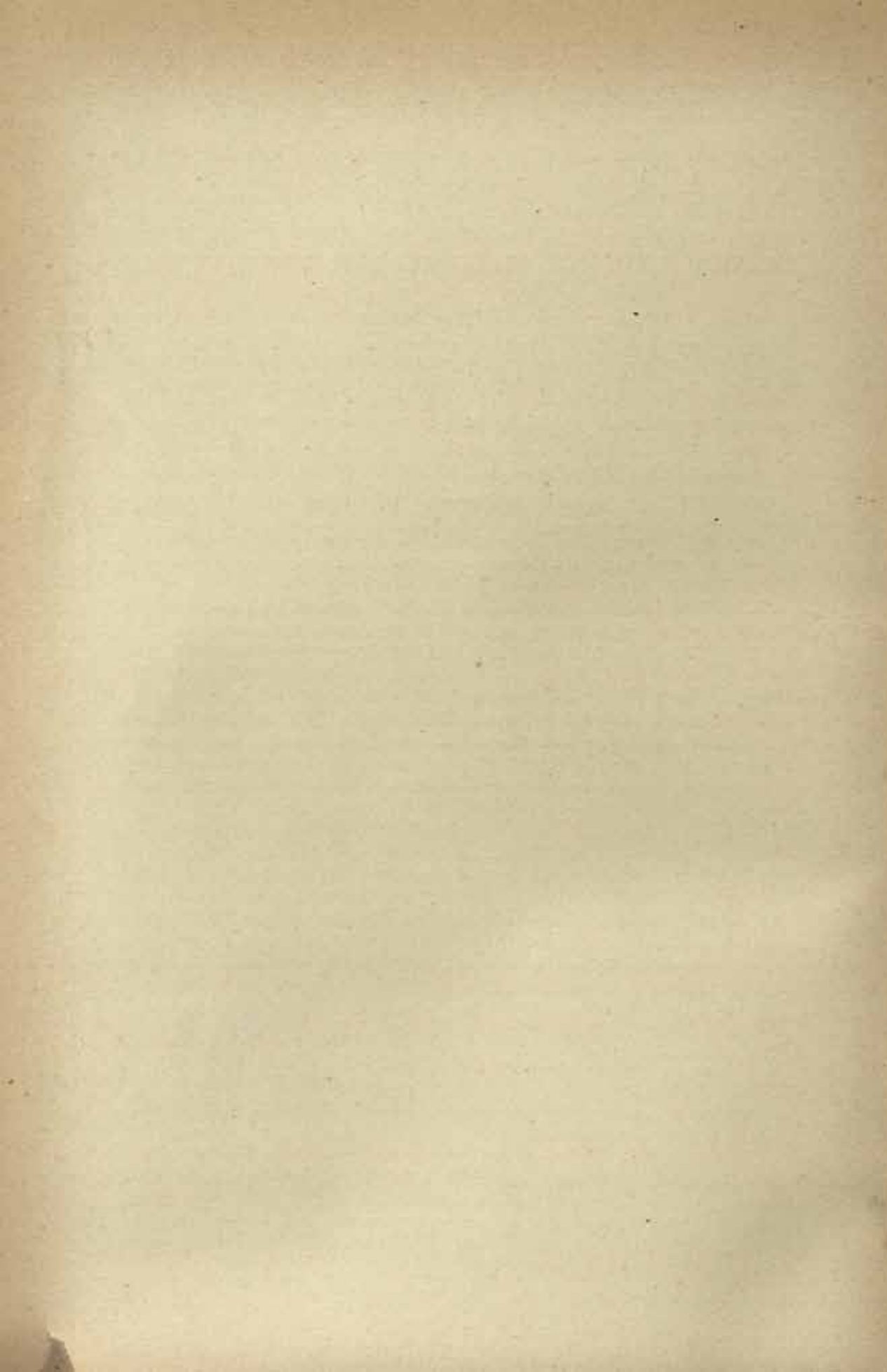
What its significance may be in the history of the world we cannot at present tell. Some have thought that the Phœnicians borrowed its alphabet, and that through them our books and our letters are recorded in signs which are in origin Egyptian. But all such theories are as yet entirely hypothetical.

Nevertheless, Egyptian writing may be examined with interest as an unique illustration of the history of writing in general. We find in it a well-developed script fully preserving its pictorial origin. The decorative instinct of the Egyptians, as well as their conservative nature, led them to retain the pictures and to represent them with full detail in monumental inscriptions for thousands of years after they had advanced to cursive writing. In the Chinese and Mesopotamian systems traces of the pictorial origin of the signs are still fairly clear, but it is doubtful whether those origins can ever be made out with definiteness and certainty in more than a very few cases. The remains of the Hittite system may indicate a history perhaps similar to that of the Egyptian. Cretan hieroglyphics we hope will soon yield their key to the far-sighted discoverer of them. While primitive writings are thus being recovered in quarters hitherto unsuspected, it is safer for the Egyptologist to refrain from speculation as to any foreign development of the system with which he is concerned. On the other hand, he may well endeavour to ascertain and expound its principles, so that workers in still newer fields of research may perchance derive from his labours solutions of some of their own difficulties.

Reference has been made to the change which is taking place in the position of Egyptology. Berlin is the centre of the philological study of Egyptian, and thanks to Erman, Steindorff, and Sethe, the Egyptian grammar has been worked out from very unpromising materials with wonderful success. The most remarkable result obtained by Sethe's great work on the Egyptian verb is to prove that the roots of Egyptian words in the vast majority of instances were in early periods triliteral. In this, as in other points, the structure of Egyptian, especially in ancient times, has many analogies to Semitic, and the cautious Erman permits himself to assert that at a period earlier than that of any inscribed monuments at present known to us, Egyptian was a Semitic language. He considers that

it was imposed on an African people by a small body of conquerors, and that it changed so rapidly in pronunciation that few obvious connections with Semitic are now seen in its vocabulary, while the Semitic conjugational forms were generally replaced by periphrases. The accumulating proof of some such historical relationship of the Semitic and Egyptian tongues must greatly affect our ideas of the early history of civilisation.

Having established the knowledge of Egyptian grammar, the great Berlin School is now devoting its energies to the formation of an exhaustive verbal index to the inscriptions and papyri—exclusive of demotic and Coptic. This work, now in its third year, is being carried out on a very ingenious plan, with the view of ultimately publishing from it a complete dictionary. Besides the German staff, two English students, one Dane, and one American are now engaged in the undertaking, and more workers will co-operate as time goes on. Already some striking results have been obtained. When this great task is completed, Egyptian philology will indeed have been placed on a firm footing.



ANTHROPOLOGICAL REVIEWS AND MISCELLANEA.

Readers of the Journal are invited to communicate any new facts of especial interest which come under their notice. Short abstracts of, or extracts from, letters will be published at the discretion of the Editor. Letters should be marked "Miscellanea" and addressed to The Secretary, 3, Hanover Square, W.

EXPLANATORY NOTICE.

To facilitate reference, and so to increase the usefulness of these "ANTHROPOLOGICAL REVIEWS AND MISCELLANEA," the Council of the Anthropological Institute has authorised the following amendments in their form.

In the first place, each item will be provided in future with marginal catch-titles in clarendon type, giving the name of the author of the note, or of the work under review, and also the subject to which the note or review refers. Each item will further be provided with a marginal number, by which it should be quoted, instead of by the page number.

In the second place, the "Reviews and Miscellanea" will in future be printed with a separate pagination from that of the rest of the *Journal*. This will permit the whole of the "Reviews and Miscellanea" in each annual volume to be bound up together at the end, and so will leave only one place where short articles are to be sought instead of two as at present.

In the third place, the separate pagination, above described, will make it possible to issue short copies of each sixteen-page sheet of "Reviews and Miscellanea," in advance, to any one who may desire to have early information of its contents. As it is further proposed to increase the amount of such matter so as to issue one such sixteen-page sheet *monthly*, the Institute thus acquires a monthly record of current anthropological work which should be of the utmost value not only to the Fellows, but to all English-speaking students of the Science of Man. The details of the proposed monthly issue will be found in the next paragraph.

"Man."

Anthropological Institute.

Man, a Monthly Record of Anthropological Science, published under the direction of the Anthropological Institute of Great Britain and Ireland. Imperial 8vo. 16 pages monthly from January, 1901. Published by the Anthropological Institute, 3, Hanover Square, London, W. 1

Under the above title, the Council of the Anthropological Institute proposes to establish a Monthly Record of progress in the various branches of the Study of Man. Its contents will include contributions to Physical Anthropology, Ethnography, and Psychology; the Study of Language and the earlier stages of Civilisation, Industry, and Art; and the History of Social Institutions and of Moral and Religious Ideas.

These various branches of study will be treated more fully, in proportion as they are less adequately provided for in existing periodicals. Classical Philology and Antiquities, for example, and the History of European Civilisation, which have recognised organs of their own already, will be treated only from the strictly anthropological standpoint; and, conversely, prominence will be given to those other studies, such as Prehistoric Archaeology, and the History of non-European Cultures, which (in this country at all events) have not hitherto had a periodical record of their own. Special note will be taken, throughout, of those investigations which deal with the origins and the earlier stages of those forms of civilisation, which have eventually become dominant, and of the races among which they have arisen and developed.

Each number of "MAN" will consist of 16 imperial 8vo pages (i.e., of the size and style of printing of the page on which this note is printed), with occasional illustrations in the text; together with a full page plate produced by colotype, lithography, or other such process.

The contents of "MAN," like those of the "Anthropological Reviews and Miscellanea" out of which it grew, will include:—

1. Original articles and notes on current researches and controversies: considerable space will be devoted to inquiries and correspondence.
2. Reviews of recent publications and critical summaries of the principal monographs in Journals and Proceedings of Societies.
3. Reports of the meetings of learned Societies at home and abroad.
4. Descriptive and critical notices of the acquisitions of the principal Museums and of private collections.
5. Bibliographies, as complete as can be made, with brief critical summaries, of various departments of study in turn; including foreign publications and periodical literature.

For convenience of reference, each article will be furnished with catch-titles in clarendon type, giving the subject and the author's name, and with a distinct reference number in the margin.

It will be seen from this brief account, that the object of the proposed publication is to provide a prompt survey of the work of existing organisations; to serve as a centre of communication and discussion to a number of small groups of workers in many different departments of the Human Sciences; and to bring within their reach a concise summary, at frequent intervals, of the work which is being done in the fields which border on their own.

As already indicated, "MAN" will be published by the Anthropological Institute of Great Britain and Ireland, and will be obtainable at its offices, 3, Hanover Square, London, W., on the following terms:—

1. By Fellows of the Institute, post free, at the rate of sixpence a number, or at an annual subscription of six shillings. Each Fellow will, of course, continue to receive as before, and in consideration of his ordinary subscription to the Institute, a complete copy of the half-year's numbers of "MAN," at the end of each half-yearly part of the *Journal*.
2. By Societies and Institutions which undertake to distribute not less than fifty copies to their own members, at the rate of 7s. 6d. per annum. It is believed that many Societies, which have no monthly bulletin of their own, may be glad to avail themselves of this opportunity of earlier publication of their proceedings, than their own fuller but less frequent reports can supply: and it will accordingly be a settled policy to

cultivate such relations both with Societies and with existing Journals, as may facilitate this result.

3. By the general public at the rate of one shilling a number, or at an annual subscription of ten shillings.

The first number of "MAN" will be published in January, 1901, and the Fellows of the Institute are invited to use their best endeavours to secure for the new departure the support which its objects deserve.

Proceedings.

Anthropological Institute.

A Summary of the Proceedings of the Anthropological Institute of Great Britain and Ireland: January—June, 1900.

2

Ordinary Meeting, January 9th, 1900.—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the last Meeting were read and signed. Messrs. Holt and Walhouse were appointed Auditors.

Professor Flinders Petrie's paper, "Sequences in Prehistoric Remains," was taken as read. It is printed in full in this *Journal*, vol. xxix (N.S. ii), pp. 295-301.

Mr. H. M. Chadwick, of Clare College, Cambridge, read a paper on "The Oak and the Thunder-God," which was discussed by Messrs. W. Gowland, M. J. Walhouse, Dr. Kingston, Mr. G. M. Atkinson, and the President. It is printed in full in this *Journal* (vol. xxx, pp. 22ff). A vote of thanks to Mr. Chadwick was carried unanimously.

Dr. Kingston communicated "Notes on some Caves in the T'Zitzikama or Outeniqua district, near Knysna, South Africa, and the objects found therein," and exhibited a number of objects which he had collected, and also lantern slides of natives and scenes in South Africa. The "Notes" are printed in full in this *Journal* (vol. xxx, pp. 45ff).

Mr. F. C. Shrubbsall contributed "Notes on Skeletons found in the T'Zitzikama and Knysna Caves," to which Dr. Garson added some further remarks. A vote of thanks to Dr. Kingston and Mr. Shrubbsall was carried unanimously.

Annual Meeting, January 30th, 1900.—(See *Journal*, vol. xxx, p. 1ff.)

Ordinary Meeting, February 13th, 1900.—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the last Meeting were read and signed.

3

The election was announced of Dr. F. P. Moreno, Professor Baldwin Spencer, and Dr. E. Dupont, as Honorary Fellows of the Institute. Messrs. J. W. Crowfoot, B.A., and L. R. Farnell, M.A., were elected Fellows of the Institute.

Mr. W. L. H. Duckworth read a note on the Congress of the German and Viennese Anthropological Societies held in Lindau in September, 1899, which is printed in this *Journal*, vol. xxix (N.S. ii), p. 314.

Dr. Reginald Koettlitz read his "Notes on the Somali, Galla, Abyssinian, and Shangalla People, and their Manners and Customs," which were illustrated by lantern slides and are printed in abstract in this *Journal* (vol. xxx, p. 50ff). The paper was discussed by Messrs. Ravenstein, Lewis, and others, and a vote of thanks to Mr. Koettlitz was carried unanimously.

Ordinary Meeting, March 13th, 1900.—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the last Meeting were read and signed.

4

The election was announced of Mr. Wm. McDougall as a Fellow of the Institute. On behalf of Mr. E. S. Hartland, the Secretary exhibited and explained a lantern

slide of a war god from Bonna in the Congo State, now in the Leiden Museum. The President noted that a very similar one was in the collection of Miss Mary Kingsley.

Mr. A. L. Lewis read a paper on "The Stone Circles of Scotland," which was discussed by the President, Mr. Gowland, Dr. Garson, and Mr. Gomme. It is printed in this *Journal* (vol. xxx, p. 56ff). A vote of thanks to Mr. Lewis was carried unanimously.

Mr. J. L. Myres exhibited a series of photographs and lantern slides of the Megalithic buildings of Malta and Gozo.

5 *Ordinary Meeting, March 27th, 1900.*—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the last Meeting were read and signed.

The election of Dr. W. H. R. Rivers and Mr. T. V. Hodgson, as Fellows of the Institute, was announced. The Secretary read a list of the books presented to the Institute since the last Meeting.

Dr. A. C. Haddon, F.R.S., and Mr. Charles Hose exhibited and explained a number of lantern slides, illustrating "Native Life and Customs in Sarawak." A discussion followed in which Mr. Hose stated, in answer to Mr. Myres, that he did not consider that the people of Sarawak were cannibals. A vote of thanks to Professor Haddon and Mr. Hose was carried unanimously.

6 *Ordinary Meeting, April 24th, 1900.*—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the last Meeting were read and signed.

The election of Mr. Anthony Wilkin, B.A., as a Fellow of the Institute, was announced. The Secretary read a list of books presented to the Institute since the last Meeting.

Dr. W. H. R. Rivers read a paper on "A Genealogical Method of Collecting Social and Vital Statistics," which he had practised in Torres Straits and British New Guinea. The paper is printed in full in this *Journal* (vol. xxx, p. 74).

Dr. A. C. Haddon, F.R.S., described a number of lantern slides illustrating the native industries of Torres Straits and British New Guinea (*cf. Journal*, vol. xxx, *Miscellanea*, Nos. 72-3, and *Geogr. Journal*, xvi, p. 414ff). The paper was discussed by Mr. G. L. Gomme, Dr. Japp, Mr. Gowland, and the President, and a vote of thanks to Dr. Rivers and Dr. Haddon was carried unanimously.

Mr. J. L. Myres read portion of a letter from Mr. Arthur J. Evans describing the important discoveries made by the latter in Crete.

7 *Ordinary Meeting, May 15th, 1900.*—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the last Meeting were read and signed.

The election was announced of Professor W. M. Flinders Petrie and Mr. C. G. Seligmann as Fellows of the Institute.

The President called attention to the great loss the Institute had sustained by the death of Lieutenant-General Pitt-Rivers, who had been twice its President.

The Secretary communicated a note by Mr. F. Haverfield, F.S.A., "On Certain Objects of Chalk from a Romano-British Site at Clanville, Hants." The communication was discussed by Professor Tylor, Mr. W. Gowland, Mr. J. Allen Brown, and the President, and it was agreed that there was no evidence of human workmanship on the objects which were exhibited.

Mr. J. Allen Brown, F.G.S., read a paper "On Stone Implements from Pitcairn Island," which is printed in full in this *Journal* (vol. xxx, p. 83ff). The paper was discussed by Professor Tylor, Dr. Montelius, Messrs. Howarth, Gowland, Rudler, and Lewis. A vote of thanks to Mr. Allen Brown was carried unanimously.

Mr. H. Stopes read a paper "On some unclassified Stone Implements," and exhibited lantern slides and a large selection of flint implements from his own collection. The paper will be printed in full in this *Journal*. After a brief discussion a vote of thanks to Mr. Stopes was carried unanimously.

Ordinary Meeting, May 29th, 1900.—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the last Meeting were read and signed. 8

The election was announced of Dr. A. H. Japp, LL.D., F.R.S.E., as a Fellow of the Institute. The Secretary read a list of books presented since the last Meeting.

Professor Oscar Montelius, of Stockholm, gave a discourse on "The Earliest Communications between Italy and Scandinavia," which is printed in full in this *Journal* (vol. xxx, p. 89ff). Discussion was carried on by the President and Messrs. Myres and Lewis. A vote of thanks to Professor Montelius was carried unanimously.

Extraordinary Meeting, June 5th, 1900.—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the last Meeting were read and signed. 9

The Secretary read a letter from Mr. Arthur J. Evans, giving further details of the recent discovery of Mycenaean remains in Crete.

Dr. J. G. Garson read a paper on "The Metric System of Identification used in Great Britain," which is printed in full in this volume of the *Journal*. The paper was discussed by Mr. MacIver, Colonel Garsia, Mr. Francis Galton, Major Clayton, Sir J. Crichton Browne, and Mr. Coffin. A vote of thanks to Dr. Garson was carried unanimously.

Ordinary Meeting, June 12th, 1900.—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the previous Meeting were read and signed. 10

Dr. J. Deniker, Librarian of the Jardin des Plantes, Paris, and an Honorary Fellow of the Institute, was welcomed by the President in suitable terms.

The Secretary exhibited, on behalf of Mr. H. Swainson Cowper, a primitive figurine from Adalia, in Asia Minor, and pointed out its resemblance to the "owl-faced figures" discovered by Dr. Schliemann at Troy. The figurine will be described and figured in this *Journal*.

Mr. B. H. Pain read a paper by Mr. W. L. H. Duckworth and himself "On a contribution to Eskimo Craniology," which was discussed by Dr. Deniker, Dr. Garson, Mr. Duckworth, Mr. Shrubsall, and the President, and is printed in full in this *Journal* (vol. xxx, p. 125). A vote of thanks to the joint authors of the paper was carried unanimously.

Mr. W. L. H. Duckworth read a paper "On a collection of Crania, with two skeletons, of the Mori-ori, or aborigines of the Chatham Islands; with a note on some Crania from the same islands in the Museum of the Royal College of Surgeons," which is printed in full in this *Journal* (vol. xxx, p. 141), and was discussed by Dr. Garson, Mr. Shrubsall, and the President. Mr. Shrubsall exhibited a series of drawings of Crania of similar races. A vote of thanks to Mr. Duckworth was carried unanimously.

Mr. John Gray, B.Sc., read a paper by Mr. James Tocher and himself, "On the Physical Characteristics of School Children and Adults in East Aberdeenshire," which is printed in full in this *Journal* (vol. xxx, p. 104). A vote of thanks to the joint authors of the paper was carried unanimously.

Autumn Session.—For reports of the Meetings of the Anthropological Institute in the months of November and December, see below, No. 120.

Anthropological Lantern Slides.**Anthrop. Institute.**

11 *Regulations for the Use of the Loan Collection of Lantern Slides, organised, jointly, by the Anthropological Institute of Great Britain and Ireland and by the Folklore Society.*

In order to encourage the study of anthropological subjects, and to provide teachers and lecturers with suitable illustrations, with the minimum expense, the two societies above named have appointed a joint committee to organise a Loan Collection of Anthropological Lantern Slides, for the use of the members of the two societies in the first place, and also of teachers and lecturers who are not members.

The Joint Committee has issued the following regulations for the use of the slides, which come into force in October, 1900:—

1. The lantern slide collection shall consist of slides which are (a) the property of individuals, deposited on loan, every depositor to have the loan, free of charge, of five slides in every year, in respect of every slide so deposited; (b) the property of the Folklore Society; (c) the property of the Anthropological Institute.

2. The slides shall be available for use, under the conditions hereinafter specified, (a) by members of the Folklore Society and members of the Anthropological Institute, who shall be responsible for the safe return of the slides borrowed, or for their replacement in case of loss or damage; (b) by non-members, introduced by a member of one or other society, who shall be responsible for the safety and return of the slides. But slides may be hired by non-members only in certain entire sets suitable for lecture purposes.

3. The slides shall be kept, for the present, in the rooms of the Anthropological Institute, and shall be under the charge of the Assistant Secretary, who shall send them out and receive them back as required.

4. The rate of hire for members, not being depositors, shall be threepence per slide prepaid, exclusive of postage; but one penny per slide shall be remitted if the slides are received back within three days from their despatch from the rooms of the Institute.

5. The rate of hire for non-members shall be five shillings a dozen prepaid: together with a deposit of five shillings as guarantee.

The Collection consists at present of between one hundred and two hundred slides, covering a variety of subjects. The thanks of the Joint Committee are due to a number of Fellows and others who have generously contributed to the collection already; in particular to Dr. A. C. Haddon, F.R.S., and to the Anthropological Photographs Committee of the British Association for the loan of a number of valuable negatives; and to Mr. E. S. Hartland and Mr. R. E. Guise, for their gifts of slides. Fellows of the Institute are invited to assist, by gift or deposit of slides, and by the loan of suitable negatives, in making it more complete and more generally useful. A subject Catalogue of the whole Collection will be published in due course.

Anthropometry: General.**Rivers.**

12 The communication which follows, from Dr. W. H. R. Rivers, of St. John's College, Cambridge, has been under the consideration of the Council of the Anthropological Institute:—

"Nearly every year members of savage or barbarous races are exhibited in London in large numbers. At present, little or nothing is done to utilise the anthropological material which is thus brought to our doors, although in other countries, and especially in Germany, much useful work has been done.

"I have no doubt that the proprietors of exhibitions would be much more ready to grant facilities for investigation to the representatives of a scientific body than to private individuals, and I therefore wish to suggest to the Council of the Anthropological Institute that some steps might be taken to further the organization of work in this field.

"It seems to me that much would be gained if the proprietors of exhibitions would allow accredited representatives of the Institute facilities for investigation during hours when the exhibitions are not open to the public, and it is especially desirable that the facilities should be given soon after the arrival of the natives in England before they have been ruined for purposes of scientific study by the British public.

"Any measures which might be taken need not involve the Institute in any expenditure, as the necessary expenses for rewards, etc., would probably be willingly defrayed by the individual workers."

The Council of the Anthropological Institute has accordingly resolved to make representations to the proprietors of such exhibitions, and to issue letters of introduction to qualified observers who wish for special facilities. Information as to the arrival of natives for exhibition should be sent to the office of the Institute, 3, Hanover Square, W.

OBITUARY.

Mary Kingsley.

Toulmin Smith.

Miss Mary H. Kingsley, 13th October, 1862-3rd June, 1900. Communicated

by Miss L. Toulmin Smith.

13

This remarkable woman, whose untimely death on 3rd June last is a loss to science and humanity, was born in October 1862, at Islington, her parents removing the following year to Highgate, near London, where they remained till 1879. Her father, George H. Kingsley, brother to Charles and Henry Kingsley, was a doctor who travelled, and as his daughter shows in her charming Memoir, he was above all things imbued with the love of nature and natural objects. From her childhood upwards Mary was amidst books, chiefly scientific,—frequently referred to on receipt of the traveller's letters—of which she became an omnivorous reader; while her mother's numerous pets—cats, dogs and birds—and a rambling garden claimed her practical care and love for years. From zoology and natural history she eagerly took up modern works on ethnography and anthropology—Darwin, Huxley, and Tylor her masters. She pursued with ardour the study of mathematics and German, and dived into the mysteries of chemistry and electricity. At Bexley Heath, where the family lived for a few years, she became acquainted with the electrician, C. F. Varley, but in Cambridge, where they removed about 1884, the opportunities of study and discussion which she enjoyed enabled her to make excursions into many subjects attractive to her independent mind. Devotion to her invalid mother and anxiety for her father's health weighed heavily on her capable powers for some years, till in the spring of 1892 they both passed away. A visit to the Canaries shortly after restored her tone and gave her a taste of the joy of exploration into untrodden regions, for even here she did not content herself with the beaten path. Removing to London with her brother, she formed a plan of going to the coast of West Africa to study law and religion among the natives, and at the same time undertook a commission to collect freshwater fish and insects for the British Museum. Starting in 1893 with a sense of freedom, she visited St. Paul de Loanda, Labenda, and other places, and returned early in the following year, bringing a valuable collection, among which were many

new species, gathered amid dangers and difficulties in countries unexplored before. In high spirits and health she gathered her forces and started a second time in December, 1894, ascended the Bonny and Ogowe rivers, and climbed the Cameroons, and after a year's absence, brought back many valuable additions to her ethnographical and other collections, together with stores of information carefully noted. The two volumes *Travels in West Africa* (1897) and *West African Studies* (1899) contain her record of the results of these journeys; brimful of humour illuminating the serious study, they are authorities on the subject to-day. The traveller's abilities and intrepidity were recognised with gratitude by the West African traders, and soon attracted public notice; she lectured widely on many sides of West African life, especially desiring to make known the principles of African law and religion and property, which she did at Oxford, in 1897, and at Bristol (before the British Association) in 1898. She read a paper on the "Fetish view of the human soul" to the Folklore Society in June, 1897, and was elected a member of the Anthropological Institute in June, 1898; here she read no paper, but joined in discussions on West African subjects (March and April, 1899). Her unceasing efforts had important influence for good on West African affairs.

Her other published works are *The Story of West Africa*, an historical résumé written for H. Marshall and Son (1899), and a Memoir of her father prefixed to *Notes on Sport and Travel*, but recently issued (1900), a delightful presentment of George Kingsley, pervaded with his daughter's humour and transparent to her personality. On March 28, 1900, she landed at Cape Town, hoping to be of some use during the war, and to gather more materials; in Simons Town Hospital she found that nursing the sick Boers was her first call, and here to the deep and universal regret she succumbed to enteric fever herself on June 3. She was buried at sea on the following day by her own desire. Thus was cut short a most valuable life and a brief career of splendid performance; with a character full of womanly tenderness and unselfishness she was able and wise, dealing with great issues from a large-minded outlook, and to courage joined the modesty of true genius. West Africa, no less than science, must mourn an inestimable loss.

Mary Kingsley.

Kingsley Society.

14 *The Proposed National Memorial to Mary Kingsley.*

The desire has been very widely expressed among Miss Kingsley's many friends, and among the still larger number of those who knew her through her writings and lectures, to establish a permanent Memorial to her.

It is in a great measure owing to Miss Kingsley's writings and her absolutely unique researches into native customs and institutions that so much interest has recently been taken by the general public in West Africa. She herself took a deep interest in all that might in any way tend to the improvement of the conditions of life in that part of the world, both of Europeans and of the natives.

Liverpool, owing to its very large West African interests, was frequently visited by Miss Kingsley, who there, as also in Manchester, formed many close friendships with those engaged in the West African trade. Immediately after her death a movement was set on foot by certain Liverpool and Manchester merchants to perpetuate her memory by associating her name with a small Hospital for the treatment of tropical diseases to be established in connection with the Liverpool School of Tropical Medicine.

Other of Miss Kingsley's friends desire that her name should also be associated with a Society for the study of Native Customs and Laws, which was her first object and occupied the greatest part of her time and energy, and that "The Mary Kingsley

Society of West Africa" should be established to stimulate research and to collect from all sources information concerning West Africa.

Miss Kingsley held that the right way to bring out the full value of British West Africa is, not in the direction of trying to force European civilisation and customs on natives who already have a different, if rudimentary, social system of their own, but first to study this indigenous system, which must to some extent be suited to its environment, and then to select from this, and to develop the better and more useful elements. It is believed that much information of the required kind as to West African Sociology is already on record, scattered through the works of the older writers on those parts, as well as in more recent books of travel, in papers published in periodicals, in blue books, and in official reports; and a very great deal more may still be gathered by Government officials, traders, missionaries, travellers, and by the small but remarkable band of natives who are already educated.

It is proposed that the "Mary Kingsley Society" should employ a trained ethnologist, both to collect and arrange in scientific form the material which is thus already on record, and to institute and direct research for further material of the same sort; and it is intended that the Society, after the manner of the Royal Asiatic Society, should periodically publish the results which it obtains, and should thus provide additional knowledge by which European relations with West Africa may be most safely and effectively directed, with profit both to the natives and to the Empire.

Several meetings of Miss Kingsley's friends have been held in London to discuss the matter, and it has been decided that the memorial should include both the Hospital and the Society, and that an appeal should be made to the public for support to both; the subscriptions being assigned to either the Hospital or to the Society, according to the wish of subscribers.

Contributions for the "Mary Kingsley Memorial Hospital" should be sent to Mr. A. H. Milne, B. 10, Exchange Buildings, Liverpool, and for the "Mary Kingsley Society of West Africa" to Mr. George Macmillan, St. Martin Street, Leicester Square, London, W.C.

Unless specifically assigned by the donors, all contributions sent to Mr. Milne will be devoted to the "Mary Kingsley Hospital," and those sent to Mr. Macmillan to the "Mary Kingsley Society of West Africa."

The following have consented to act on the Provisional Committee:—Dr. E. Adam; Mrs. Antrobus; Mr. H. Balfour; Dr. C. F. Harford Battersby; Mr. J. Batty; Mrs. Bishop; Sir T. Lauder Brunton; Lady Brunton; Count C. de Cardi; Dr. Carter; Lady Chalmers; Mrs. Clark; Sir Andrew Clarke, G.C.M.G., C.B.; Viscount Cromer, G.C.B., G.C.M.G.; Major Leonard Darwin; Dr. J. G. Frazer; Rt. Hon. Sir George Taubman Goldie, K.C.M.G.; Mrs. J. R. Green (Hon. Sec.); Dr. F. H. H. Guillemard; Dr. A. C. Haddon, F.R.S.; Mr. E. Sidney Hartland, President of the Folklore Society; Mr. John Holt; Mr. J. A. Hutton; Mr. Everard Im Thurn, C.B., C.M.G.; Mr. James Irvine; Lady Johnston; Mr. Alfred L. Jones; Rev. Dennis Kemp; Sir Alfred Lyall, K.C.B., G.C.I.E.; Sir William MacGregor, K.C.M.G.; Lady MacGregor; Mr. George Macmillan (Hon. Treasurer); Mr. A. H. Milne (Hon. Treasurer); Mr. J. L. Myres, Secretary of the Anthropological Institute; Major Nathan, R.E., C.M.G.; Mr. G. W. Neville; Dowager Countess of Pembroke; Sir Frederick Pollock, Bart.; Mr. Charles H. Read, President of the Anthropological Institute; Professor William Ridgeway; Major Ronald Ross; Mr. H. Ling Roth; Sir John Smalman Smith; Miss Toulmin Smith; Colonel J. G. B. Stopford; Mr. J. St. Loe Strachey; Mr. F. Swanzy; Professor E. B. Tylor, F.R.S.; Mrs. Humphry Ward.

Oscar Baumann.

Felkin.

15 Oscar Baumann, Ph.D. 25th June, 1864-12th October, 1899. Contributed by R. W. Felkin, M.D., F.R.G.S.

By the death at Vienna of Dr. Oscar Baumann, who had been for some years Austrian Consul at Zanzibar, ethnology has lost an earnest student, a careful investigator, and a writer on the anthropology of Africa of considerable merit. Baumann was born at Vienna on the 25th of June, 1864, and his premature death has been greatly regretted by his friends and is a distinct loss to science. He studied at Leipzig, where he graduated as Doctor of Philosophy, and after serving as an officer in the Austrian army and preparing for exploration in Africa, he went to the Congo in Dr. Lenz's company in 1885.

After his expedition to the Lower Congo, Baumann went to Fernando Po, and since then his sphere of work was transferred to the east coast of Africa. He was there in 1888 during the rebellion in the German territory; he visited Usambara for the German East African Company in 1890; and he subsequently made a journey through Masai Land to the Victoria Nyanza. After his appointment as Austrian Consul in Zanzibar, he investigated and described Zanzibar and the neighbouring islands; in fact it was this work, which he performed when out of health, that led to his premature decease.

Apart from Baumann's geographical work, which was of considerable value, he rendered considerable service to anthropology by the careful descriptions he gave of the natives with whom he came in contact, their habits and customs, dwellings, weapons, and implements. His monograph on Fernando Po is certainly the most complete which has ever been written concerning that island and its inhabitants, and he strongly advocated its development. His description of the natives of Usambara and the neighbouring districts is the best which we possess, and the account of his journey to the Victoria Nyanza is replete with valuable information.

Baumann had great tact and sympathy with the natives. He soon won their confidence and was therefore able to get more accurate and detailed information respecting their ideas than any other travellers who have been in the same districts. Although his investigations were carried out in great detail, his writing is concise, and he manages to convey a very accurate general view of the condition of the people he describes.

Baumann made friends wherever he went by his sympathetic and genial disposition. He will be greatly missed. He died in Vienna on October 12, 1899. His principal works were as follows:—*Fernando Po*, 1889; *In Deutsch-Ostafrika während des Aufstands*, 1890; *Usambara und seine Nachbargebiete*, 1891; *Durch Masailand zur Nilquelle*, 1894; *Die Insel Sansibar*, 1897; *Die Insel Pemba und ihre Kleinen Nachbarinseln*, 1899.

AFRICA.

Algeria: Ethnography.

MacIver and Wilkin.

16 An exhibition of Algerian and Kabyle objects was held in the rooms of the Anthropological Institute, from Monday, June 18th, to Saturday, June 23rd. Such an exhibition is a new departure on the side of the Institute, and was fully justified by the result, for a considerable number of Fellows and others took the opportunity of studying the large and representative collection which was thus put at their disposal, and it was eventually found desirable to keep the exhibition open even beyond the date originally announced.

The objects which were exhibited were collected during a recent journey by two Fellows of the Institute, Mr. David Randall-MacIver, B.A., Laycock Student of Egyptology at Worcester College, Oxford, and Mr. Anthony Wilkin, B.A., of King's College, Cambridge, whose results will, it is hoped, be shortly placed in full before the Institute and the general public.

The exhibits comprised:—

A. *Objects from the Chaouia tribes of the Aurès Mountains*, such as (1) the rough hand-made pottery, undecorated, and of very primitive forms, which is made by the women and is used for domestic purposes in all the villages of the Aurès; (2) specimens of all the typical kinds of jewellery made in the Aurès Mountains by the local silversmiths, the metal for which is obtained from old silver coins, while the coral, which is highly prized, is imported from the coast; (3) wool-work bags and cases, showing the native patterns; (4) snuff horns with incised patterns, wooden water-bottles, flutes, traps for animals and birds, and so forth.

B. *Objects from the Kabyle tribes in Little Kabylia*, east of the Sahal River, and in Great Kabylia, near Fort National. (1) The most important exhibits among these are the specimens of finely decorated pottery, some classes of which are identical with the pottery of the prehistoric Egyptians (*circa* 6000 to 5000 B.C.). The manufacture of this pottery is confined to certain villages in the heart of the mountains. The exhibitors visited these villages to obtain their specimens, and studied in detail the processes of the manufacture. (2) The brushes and pigments used for painting the pottery were shown, and also a series of photographs illustrating the stages in the life history of the pots. (3) Other exhibits included specimens of silver-work like those from the Aurès, and specimens of wood-carving and models, baskets, knives, etc.

The exhibits were accompanied by a large number of photographs, including:—(1) Views of the mountain country, villages, and houses of these Berber tribes; (2) the arts and industries of the people, *e.g.*, pottery making, silver-working, spinning, weaving, pressing of olives and manufacture of olive oil, etc.; (3) the dolmens and other megalithic remains from four different sites, with drawings of the skulls found in the dolmens by General Faidherbe in his excavations; (4) anthropological portraits of a large number of Berbers, taken in their own villages.

Morocco: cf. J.A.I. XXIX (N.S. II), p. 252.

Lang.

Ġinn and Fairies. Communicated by Andrew Lang.

17

On reading Dr. Westermarck's interesting account of the beliefs of the people of Morocco about *Ġinn* (*Journ. Anthropol. Inst.* XXIX (N.S. II), pp. 252-269), I was struck by the close resemblance of Arab to Celtic superstition. The *Ġinn*, in almost all respects, correspond to the People of Peace, or Fairies, of Irish and Scottish folklore. Nobody, perhaps, has yet tried to derive our fairies from Totemism, and Dr. Westermarck has refuted that curious theory, as applied by Professor Robertson-Smith to the *Ġinn*. In my humble opinion the *Ġinn* are Fairies, neither more nor less. Doubtless they are much older than Islam, or Christianity, but the Arab account of *Ġinn*, like the Scotch theory of fairies, is influenced by the prevailing religion. Dr. Westermarck writes, "The *ġinn* form a special race of beings, created before Adam. In various respects, however, they are like men. They eat and drink, they propagate their species, they are subject to death. . . . They even form sexual connections with men."

Let us compare the Rev. Robert Kirk's account of the Fairies (*circa* 1690). Mr. Kirk's *Secret Commonwealth of Elves, Fauns, and Fairies* was edited, from a MS. by Scott, in 1815, and by myself, in 1893. "The *Sith* . . . are said to be

of a middle nature betwixt Man and Angel. . . . They have Children, Marriages, and Deaths even as we. . . . They are clearly seen by men of Second Sight to eat at Funerals and Banquets. . . . There be many fair ladies of this aerial order, which do often tryst with young men . . . in the quality of lightsome paramours."

So far, then, the *ǧnūn* and the Fairies are identical. The *ǧnūn*, at Fez, live in an old fort. So they do in Ireland, to this day, and Mr. Kirk mentions that they abide in the motes, or mounds, near churches. Such motes, hard by the church, exist at St. John's Town of Dalry, Parton, and Balmaclennan, in Galloway, being the bases of ancient fortified dwellings. "Their native country is below the earth," says Dr. Westermarck. "The earth being full of cavities or cells," says Mr. Kirk, "these are their ordinary dwellings." The *ǧnūn* "live in tribes or nations, of which each has its sultan." "The Fairies live in Tribes and Orders," and the Fairy king and queen, "aristocratical rulers," are known to everybody. "The *ǧnūn* . . . may assume almost any shape they like." The Fairies "grovele in different schapes," says Kirk. Whirls of sand or dust are caused by *ǧnūn*. They are also attributed, in Scotland, to Fairies, who ride, causing the *tourbillon*, to the cry of "Horse and Hattock." The *ǧnūn* produce diseases by shooting arrows. So do Kirk's Fairies. "Their weapons are much of stone, like to yellow soft Flint spa (*sic*) shaped like a barbed arrow-head," and Mr. Kirk treasured several of these neolithic weapons. The *ǧnūn* are afraid of salt and steel. "Iron hinders all the operations" of the Fairies, and a piece of iron is put into the bed of a woman in labour. As to salt, a dish thereof is put on the breasts of corpses before burial, to keep off evil influences. The Bible is as efficacious as the Koran. The *séance* witnessed by Dr. Westermarck is the old Maori and modern spiritual *séance*, down to the "materialised" hand of the *ǧinn*. "The *ǧnūn* are frequently supposed to be guardians of hidden treasure." Kirk gives Fairy examples, and I have met cases both in Sligo, and, oddly enough, on Flodden Field.

Obviously the *ǧinn* are fairies, and the fairies are *ǧinn*. But nobody will say that the fairies were evolved out of Totem animals; and, indeed, though they can take many shapes, we hear little of them in animal form. On the other hand ghosts of men dead do appear very frequently, in this country, as beasts, and I am inclined to think that both fairies and *ǧinn* are more or less evolved out of ghosts. At all events, whoever wishes to derive *ǧinn* from Totems ought also to derive fairies from Totems, a thing which probably not the wildest Totemist will dream of doing. The Totem is almost as much overworked as the Sun, and the Spirit of vegetation in modern theories. Meanwhile Dr. Westermarck has, perhaps without thinking of it, proved the identity of a great province of Scottish and Arab or Moorish folklore.

Egypt: System of Writing.

Griffith.

18 *On the System of Writing in Ancient Egypt.* Communicated by F. Ll. Griffith, M.A., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 6th, 1900.

Egyptology has now reached a position among the sciences from which it may contribute trustworthy information for the benefit of kindred researches. Egyptian writing consists of Ideographic and Phonetic Elements, the signs serving as—1, Word-signs; 2, Phonograms; 3, Determinatives. The highest development shown is an alphabet, which, however, is never used independently of other signs; it is apparently not acrophonic in origin; it represents consonants and semi-consonants only, vocalisation not being recorded by Egyptian writing. No advance can be detected in the system from the beginning of the historic period to the end, notwithstanding

some improvements in practical working which facilitated the use of cursive writing. Phonograms derived from word-signs. The end of the native system was brought about by the gradual adoption of the Greek character—beginning, perhaps, in the second century A.D. If any radical improvement was ever made in the Egyptian form of writing, that improvement must have taken place at or after adoption by another people: *e.g.*, some have supposed that our alphabet was derived by the Phœnicians from Egypt; but any such derivations are at present entirely hypothetical.

Although the Egyptian system of writing may not be actually a stage in the history of our alphabet, it throws a strong light on the development of the alphabetic system: and the survival of its pictorial form (for decorative purposes) enables us to recognise the highly ramified connections between the forms and meanings of characters to an extent which is impossible at present in any other system, whether in Mesopotamia, China, or elsewhere.

The results of recent Egyptian philology indicate therefore that Egyptian was originally a Semitic language, though its character changed early. The main lines of the grammar being at length established, the materials for a complete dictionary are now being collected and classified.

Egypt: Language.

Erman.

Die Flexion des ägyptischen Verbums. Von Adolf Erman. (*Sitzungsberichte der Preussischen Akademie der Wissenschaften.* XIX. pp. 317ff.)

19

At a recent meeting of the Berlin Academy of Sciences, whilst dealing with some technicalities of Egyptian grammar, Professor Erman gave expression to some new philological results which are of importance both to the historian and to the anthropologist. His own studies had already in 1892 rendered a close connection between Egyptian and the Semitic tongues hardly dubious. But at the same time the most striking characteristic of the Semitic languages, namely, the derivation of the vocabulary from roots of three radicals, seemed to be absent from Egyptian, which appeared, on the contrary, to have a preference for biliteral roots. This difficulty has now been removed by the researches of Dr. Sethe upon the Egyptian verb (see Kurt Sethe, *Das ägyptische Verbum*, of which two volumes have already appeared, and a third, containing indices, is in preparation). It has become clear that most Egyptian biliteral verbs have become such through the decay of a weak consonant, and were accordingly, in their origin, triliteral. As a further consequence of this discovery, fresh similarities in the vocabulary have been brought to light, greatly adding to the evidence hitherto available. Professor Erman has now no hesitation in classing Egyptian among the Semitic languages. It is noteworthy that this conclusion has been reached without any investigations into the field of comparative syntax, which would, as any one acquainted with the languages in question must know, indubitably lead to valuable results pointing in the same direction.

Professor Erman then turns to the historical aspect of his conclusion. He compares the movement which carried the Semitic idiom from Arabia to Egypt and East Africa with the Mohammedan invasion which overran the same countries in the seventh century of our era. The parallel is complete, except that whereas the later stream of conquest gave birth to one extensive, yet united nation, the more ancient failed to do so. This difference he attributes with great show of reason to the fact that the Mohammedan invasion imposed a religion, while the earlier invasion did not. The greater decay of the Semitic idiom in Egypt he assigns to an original difference of race. As to this race, he surmises that they resembled those Nubians who live in the barren stretches between Assuan and Dongola. These have preserved their one language intact in this region which no invader has taken the trouble to conquer;

and it is a language unrelated to any known idiom, and doubtless—like the Basque—the relic of a tongue which once covered a far wider area. Here we probably have the original tongue of the indigenous Egyptian. Thus Professor Erman arrives at the supposition that the Egyptians were “semitised Nubians,” a conclusion which has been advanced on other grounds, and which will probably be corroborated as soon as the archaeological evidence has been properly sifted.

A. H. G.

Egypt: Physical Anthropology.**Macalister.**

20 *On Perforate Humeri in Ancient Egyptian Skeletons.* Communicated by Professor A. Macalister, M.D., F.R.S., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 11th, 1900.

In sorting out our Cambridge collection of Egyptian bones, I have noticed the frequency of supra-articular perforation of the humerus, especially in the bones from Libyan graves. I did not begin to count the number of examples until more than three-fourths of the series had been put away in store-cases, but out of the last twenty boxes opened, I found that out of 682 humeri, 390 were perforate and 292 imperforate. The percentage of perforation is therefore 57.2.

This exceeds anything hitherto published. Of ancient North Americans the percentage of perforate bones out of 300 specimens is 40 per cent. In one collection from the Gila Valley, in Arizona, 48 perforate bones were found out of 89, a percentage of 53.9; but this is exceptionally high, and the number of bones is not large. In our Cambridge collection, when I began to count, I found out of the first 115 bones that 65 were perforated; so, had I none but this series, the percentage would have come out 56.5.

The Libyans may therefore, I think, claim to hold the record. In our dissecting room there were three instances out of the last hundred bodies examined. (Other statistics will be found in Messrs. Matthews and Lamb's article on the subject. *Mem. Amer. National Acad. Sci.*, vi, 217.)

The authors just quoted are most probably correct in considering this as an acquired character. The youngest specimen obtained was in a humerus of a child probably 7 years old. I have not seen any genuine approach to this condition among 100 foetal humeri examined for the purpose. As far as I know, it has never been found in a foetal bone.

It is a perforation of the shaft well above the epiphysial junction line. The distal extremity of the diaphysis thickens below the hole down to the place where the epiphysis is set upon it.

It is always in the intra-articular part of the olecranon fossa, below the line of reflexion of the synovial membrane that crosses the middle of the fossa. It is, therefore, quite distinct from the vascular holes with which Topinard associates it, as these are always extra-articular (the vessels are chiefly derived from the inferior profunda).

Of these perforate humeri, 172 were right, and 218 were left. As far as could be determined from size, shape, and from the accompanying pelvic bones, 192 were male, and 198 were female. There is thus the same preponderance of left and female over right and male bones, which was noticed by the describers of the Hemenway collection, leading one to speculate as to the nature of the work which predisposed to the perforation—the mill, the shadoof, or the mattock.

As to the sizes of the holes, they were mostly oval or elliptical, with the long axis transverse or nearly so, and the distribution of these sizes are shown in the accompanying table:—

Length of long axis in mm.	Male.		Female.	
	Right.	Left.	Right.	Left.
1-4	17	9	12	10
5-9	54	58	52	63
10-12	14	37	22	39
over 12	1	2	0	0
Total	86	106	86	112

In the few recent examples, which were large, the hole was actually open in the recent state; when small, it is usually closed by membrane; 27 were young bones with an un-united upper epiphysis, 5 co-existed with the supra-condylar process. The opening is veniform or belobed in 33.

This note is only preliminary, as the subject is sufficiently important to require still further study. I have, however, been able to determine that while in ordinary extension and flexion, the tops of the processes do not press upon the humerus, yet by forced extension and forced flexion contact can be made to take place, especially when the elbow is forcibly extended, with the hand in the position of pronation.

Egypt: Prehistoric.

Forbes.

On a Collection of Stone Implements in the Mayer Museum, made by Mr. H. W. Seton-Karr, in mines of the ancient Egyptians discovered by him on the plateaux of the Nile Valley. By H. O. Forbes, LL.D. From *Bull. Liverpool Mus.* II, 3-4, p. 77ff. See Plate A, which, by the courtesy of Dr. Forbes, reproduces figs. 1-8 of the paper. 21

The earlier discoveries of Mr. Seton-Karr in Somaliland, and a preliminary notice of the collection here described, will be found published in this *Journal*, vol. xxvi, p. 65, 109; xxvii, 90.

The circumstances of the discovery and the ancient flint mines are described and illustrated by photographic plates. The implements are classified and described according to types; and the question of their probable date is discussed. Dr. Forbes concludes that the deeply stained patina, and the apparently "palæolithic" forms of these implements "cannot be depended on to fix the date of stone implements where there is no possibility of determining the geological age of the strata whence they have come, and in the absence of associated faunistic remains," and that none of the surface "palæolithic" implements from Egypt and Somaliland have yet been proved to belong to that period; and that probably the bulk of them are much later. J. L. M.

Egypt: Prehistoric.

Legge.

The Carved Slates from Hierakonpolis and elsewhere. By F. Legge. *Proc. Soc. Bibl. Arch.*, XXII (1900), pp. 125-139, with 9 plates; which are reproduced by permission in Plates B. C. D. 22

Mr. Legge has earned the gratitude of students of prehistoric Egypt by this full and well-illustrated account of all the known examples of these peculiar and interesting objects. Two fragments indeed are omitted as not certainly belonging to the same group (one in the Louvre, *Rev. Arch.* III, Ser. ix, p. 37ff: the other at

Gizeh, *Ægyptiaca* (*Festschr. für G. Ebers*), 1894, p. 124): the rest, seven in all, are reproduced from photographs.—The Roman numerals refer to the plates in *Proc. Bibl. Arch.*, XXII: and the letters B. C. D. to the plates which accompany this review.

- Plate B { I. Gizeh: from "the lowest layers below the temple" at Hierakonpolis.
(Obverse and reverse.)
II. Part in the Louvre, part in the British Museum, perhaps from Abydos: [the three surviving fragments are represented pieced together.
III. Oxford (Ashmolean Museum): from the same site as that on Plate I.
(Obverse and reverse.)
- Plate C { IV. Louvre: provenance unknown: cf. Henzey, *Bulletin des correspondences Helleniques*, XVI, 312: attributed to Abydos, by Sayce, *Proc. Soc. Bibl. Arch.*, XX, 99. (Obverse and reverse.)
V. Gizeh: provenance unknown: fragmentary: cf. de Morgan, *Recherches sur l'origine de l'Égypte*, II, Plate iii.
- Plate D = VI. British Museum: provenance unknown: to this belongs an unpublished fragment in the Ashmolean Museum which Mr. Legge publishes separately (*Proc. Soc. Bibl. Arch.*, XXII, p. 270, Pl. X).
- Plate C = British Museum: provenance unknown.
- Plate D = VIII and IX give details and illustrations of the representations on the Slates.

The author discusses the purpose for which these slates were used. He criticises the theory of Mr. Quibell and Professor Flinders Petrie (cf. *Nagada and Ballas*, Plate I), that they were palettes, and regards the ring which forms the central ornament of all the more perfect specimens, not as the margin of a receptacle for paint, but as a representation of the sun; suggesting that it may have been filled with gold foil or glass to heighten its significance. Comparing the form of the more perfect tablets with that of the shields represented on that in Plate II, he proposes to explain the tablets themselves as representations of such shields, used for ritual purposes, like the *ancilia* of Rome.

From the occurrence among the objects figured on these tablets, of the double-bladed axe, which he regards as peculiar to Asia Minor, and from the representations of greaves and what he regards as woollen clothing (both appropriate to a mountaineer people), he infers that the makers of the tablets were pre-dynastic invaders of Egypt, coming from Asia Minor, and probably of the same race as those who founded the civilisation of the Ægean, and perhaps of the Western Mediterranean. He gives, however, no evidence of the limitation of the double axe to Asia Minor; and the argument from greaves and clothing justifies his inference even less. J. L. M.

Egypt: Prehistoric.

Petrie.

23 Note on a carved Slate. By Professor W. M. Flinders Petrie. (*Proc. Soc. Bibl. Arch.*, XXII, 140-1.)

To Mr. Legge's paper summarised above (No. 22), Professor Petrie adds a note on the topography of the fortified enclosures represented on the fragment from Gizeh (Pl. C. V: = Legge, *loc. cit.* Pl. V; de Morgan, *Recherches*, II, Pl. iii). Each of these enclosures contains a single object, which in each case can be recognised as a form of a known hieroglyphic symbol. Following this clue Professor Petrie identifies the enclosures with towns (four in Middle Egypt, and three in the Delta), whose names contain the phonetic equivalents of the symbol. He defends, against Mr. Legge, his view that the carved slates are ceremonial paint-palettes and compares the elaborately carved mace-heads which are found with them (*Hierakonpolis*, Plate xxvff). J. L. M.

Egypt: Rekhmara.

Newberry.

"*The Life of Rekhmara.*" By Percy E. Newberry. London: Constable and Co., 1900.

24

In a recent work which has justly attained some degree of celebrity, the doubt was expressed whether the real history of Egypt was susceptible of satisfactory investigation, owing to the lack of a literature in that land. It may be that the writer was misled by the ambiguity of the word "literature," or misinformed as to the extent of the occurrence of literary evidence in Egypt. However this may be, the first instalment of Mr. Newberry's work on the tomb of Rekhmara contains a mass of undoubted literary evidence of a kind which will shed a flood of light on the nature and methods of internal administration under the Pharaohs of the eighteenth dynasty.

Rekhmara was governor of Thebes, and vizier of Upper Egypt in the reigns of Thothmes III and Amenhetop II. Mr. Newberry prefaces his work by an interesting account of Rekhmara's family, showing that the office of vizier had been hereditary in it for three generations. It need hardly be said that the laudatory inscriptions in Rekhmara's tomb give us no true insight into his personal character. The conventional virtues of the Egyptian aristocrat are therein ascribed to him, as well as some special traits such as would well become a man of his high station. It is at this point that the above-mentioned generalisation concerning Egyptian history comes nearest to the truth. Literature in general communicates what bald official lists and what that which an eminent anti-archæologist has termed "crockery" do not, namely, personal ideals and personal policy. There is, truly, little literature of this kind to be discovered in Ancient Egypt. Yet it should be remembered that in an oriental country such as Egypt variations of individual character, even if they existed to any considerable degree, can have possessed nothing of the importance that they possessed in Greece or Rome. On the other hand, the general stress of custom must have tended to break down individual peculiarities, and to have moulded individual character in its own likeness. Indeed, progress in Egypt, when left to itself, seems to have proceeded much more automatically than elsewhere: the writer whose view has here been criticised himself stated in another place that all great impulses to progress there have been the outcome of foreign intervention. So that the absence of an insight into Rekhmara's character in no way impairs the importance of the historical material provided in Mr. Newberry's book.

As regards the official functions of Rekhmara we have a long account, in which the various details of his duties as vizier are specified under twenty-seven heads. From this we learn that Rekhmara judged both in civil and criminal cases, that he had to attend to the assessment and payment of taxes, as well as to the levying of troops, and the appointment of subordinate officials of all kinds. Another important text describes the mode of investiture followed in the case of viziers, and the advice which the king was wont to give on such occasions. The particular application of these texts to the person of Rekhmara is slightly lessened by the fact that they are found, at least in part, in duplicate in the tombs of other viziers in the Theban necropolis. However all the copies belong to pretty much the same period, and the fact of their repetition is to some extent a guarantee of their truthfulness. In a group of interesting scenes the occupations of Rekhmara in his position of steward of the Temple of Amen are depicted. As such, he had to superintend all buildings devoted to the god, as well as the revenues that accrued to the god's vast estates.

Of about equal importance to that of these documents is a wall-painting representing the receipt of the taxes of Upper Egypt. The mayors of townships, the

commandants of fortresses, and the surveyors of districts are depicted each with some of his subordinates, and the amount and nature of each one's contribution are recorded together with his name and origin. The circumstantial way in which the several items are detailed, as well as the moderate figures accompanying them, render it highly probable that the scene is constructed from official documents. The taxes were paid in local produce, oxen, fruits, or cloth, as well as in measured blocks of gold and silver, the Egyptian equivalent of coinage. Future study may succeed in deducing from this scene the relative importance of the various localities of Upper Egypt at this epoch. A particular case may be mentioned. The town of Denderah is represented by no official, though the surrounding district possesses its own surveyor. Now Professor Petrie's recent excavations point in the same direction. Few monuments of the eighteenth dynasty were unearthed. Probably therefore Denderah was an almost deserted town at this time.

Such are a few of the results to be gleaned at once from this important work. Only some of the more striking facts could here be pointed out. Future research is required to obtain from the ample material here provided its full yield. Some of the inscriptions and scenes had previously been published, but neither accurately nor fully. The get-up and arrangement of Mr. Newberry's book are all that could be desired. It is much to be hoped that he will continue the work which he has begun so admirably, and continue it speedily. If he does so, he will confer a great benefit on philologist and historian alike.

A. H. G.

Egypt: Modern.

Worsfold.

25 *The Redemption of Egypt.* By W. Basil Worsfold, M.A. London: George Allen. 1900.

A hurried glance through Mr. Worsfold's pages would leave upon the mind the impression that his book is superfluous, that its "popular" aspect has nothing new about it, and that his observations on the ancient and modern architecture and on the industrial regeneration of the country can be found elsewhere in the works of the great authorities. But a more patient investigation of the contents of *The Redemption of Egypt* leads to the conclusion that this book is by no means superfluous. It appeals to a class of readers who rarely open an original authority, and it contains many shrewd and valuable criticisms. In short the work is "popular" enough to attract readers and scientific enough to teach them a great deal as they read. *The Redemption of Egypt* belongs to a fortunately increasing category of books in which the author assumes that his public is neither uninstructed nor unwilling to be further informed. To the anthropologist, as might be expected, Mr. Worsfold makes no direct appeal. Still there is not a little in what he says to interest and attract the student of mankind.

The chapter on the mosques of Cairo "as illustrating the development of Arabian Art in Egypt" is particularly good in this connection, though it would be impossible here to give even a *resumé* of it. Mr. Worsfold quotes many examples to show the debt that the architecture of the Arab owes to European, Persian, and Coptic models, but he scarcely lays sufficient stress on the fact that the Arab, in his native Arabia, had practically no architecture at all. It was (as usual) a folk-wandering, a mighty flux and fusion of races, which, under Mohammedan auspices, gave rise to Saracenic Art.

We disagree with Mr. Worsfold when he says of the statues of Prince Rahotep and his wife Nofret that they had "just such faces as we might see to-day in France, Italy, or even in England." From our own recollection of these statues we should say

they were exceedingly good types of upper class ancient Egyptians, and that, as Mr. Worsfold adds, though they have neither the "effeminacy of Asia," nor the "animality of Africa," still they have even less the characteristics of any European race. One interesting point our author does not note. Rahotep is painted red-brown and his wife yellow; so in Egypt of to-day the man who labours in the fields is dark as copper wherever his skin is exposed to the sun and wind, but, when he first strips for the shadoof, he reveals as light a colouring as his wife who sits within the home and only goes abroad (for water) at dawn or dusk.

On another point we must join issue with Mr. Worsfold when he states that "the civilisation of ancient Egypt was the highest to which any people had attained before the development of Greece and Rome." Every year that passes shows the Euphrates Valley to have been the home of a very high culture before even the Pyramids were reared. It is moreover by no means certain that the prehistoric Ægean peoples did not surpass in progress their contemporaries in the Valley of the Nile, and the belief gains ground that Egyptian civilisation was only one among many civilisations, the one which has been best preserved, perhaps, but by no means assuredly the best.

Again, it is hardly fair to speak of the Pyramids as man's first essay in architecture, for they are not even the first essay in architecture of the Egyptians themselves.

Mr. Worsfold does not hold out much hope that Englishmen will ever make Egypt their permanent home. Physically, this does not seem impossible, morally, it is perhaps (as in India) inadvisable.

The copious extracts from ancient authors are excellent and are even a new feature which is worthy of the flattery of imitation.

Much as we should like to quote many of Mr. Worsfold's interesting statements about modern Egypt, the schools, the money-lenders, the cultivation of sugar and cotton by European Companies, the irrigation works of English engineers and contractors, they hardly fall within our province. It will be enough to ask: "How long will the coming increase in the water-supply suffice for the needs of a rapidly increasing population?" "How is the condition of the fellahin to be naturally improved when in the future, as at present, they will be reduced again, after a temporary respite, almost to the verge of starvation?" Would it not be well, while we lay out millions on works which will add to Egypt, out of Nature's inexhaustible storehouse, little but dusky peasants and shining sovereigns, to spend a few thousands in restoring to the light of day what can never be replaced?

The coloured illustrations and the splendid pencil drawings add another attraction to an attractive book, but why are the Pyramids depicted as if from a standpoint several hundred feet high, when there is no such standpoint nearer than the Citadel of Cairo? However, when so much is good it is ill to cavil at trifles, and *The Redemption of Egypt* takes a place among the very best modern books on that fascinating country.

A. W.

Bantu Languages.

Meinhof.

Grundriss einer Lautlehre der Bantu Sprachen. By Carl Meinhof. From the *Journal of the German Oriental Society*. Leipzig, 1899, 8vo. Presented by the Author. 26

In Africa there are six subdivisions of the language-field, and the Bantu languages occupy the whole of the continent south of the equator, with the exception of the small area of the Hottentot Bushman forms of speech. This learned essay treats exclusively of the Bantu languages.

In the beginning of this century we knew very little of the scientific aspect of languages; it was sufficient to find the meaning of the words in the dictionary, and to be able to group these words into sentences for the purpose of speaking, reading, and writing. Things are very much changed now; the structure of the different forms of speech is studied scientifically, and along the great line of languages from the English and the schoolboy's Latin on the extreme right to the articulate sounds emitted by the voice of the South African barbarian the study of a linguist is subdivided into "sound-lore," "word-lore," "sentence-lore," and the essay, which we are passing under review, is the "lautehre," or "sound-lore," of the Bantu languages of South Africa. It was necessary to make this statement to enable the general reader to understand what the essay was about.

What is "sound-lore"? Ideas are formed in the brain of the human race by a divine power conceded to that race alone amidst the multiform animal creation. It is a divine gift, but the machinery employed by each man to convey his ideas to his fellow-man is essentially human. The wind is propelled up the larynx and out of the mouth, modified by contact with the teeth, tongue, throat, or palate, and becomes the vehicle of the ideas, according to the fancy or necessity of different tribes and individuals, each separate form of speech differing essentially from any other.

The author of the essay has applied himself to six Bantu languages, the Sato, the Swahili, the Hérero, the Duala, the Konde, and the Sango. The speakers of these languages are barbarians, and had no form of script. Their words were caught up by the European stranger as they fell from their lips, and entrusted to the Roman written characters, modified so as to suit the sounds of each language. The author discusses the sound-lore of each language at a considerable length, and most elaborately, but no one but a profound linguistic scholar could follow him in the details, and no doubt on so deep a subject the last word has not yet been said, and the reading of the details is about as interesting to the general public as the reading of a dictionary.

At the close of the essay is a statement (1) of the best known Bantu word-roots, (2) of the literature of the Bantu language-family, which has come into existence in the last half-century; with (3) a copious word-index. It is a most meritorious work, and students of African languages will be grateful to the author.

R. N. C.

Central Africa.

Henderson.

27 *Northern Nyasaland.* By the Rev. James Henderson. (*Scottish Geographical Magazine*, 1900, pp. 82-9.)

The author summarises observations accumulated during several journeys made between 1895 and 1899 in the territory which lies west of the northern half of Lake Nyasa. The following extracts are of anthropological interest.

"The produce of the native gardens in the coast plains and on the lower slopes are cassava, sweet potatoes, ground-nuts, several kinds of millet, maize, beans, pumpkins, tobacco, bananas, and plantains; as well as, where internal influences have been felt, rice, lemons, pineapples, papaws, custard-apples, and mangoes. A kind of hemp is grown by the fishermen for making nets, and in the swampy plains a pith-tree called *mabingwe* is found, which yields a substance nearly as light as cork, used for floats. In the neighbourhood of Bandawe, the wild arrow-root plant is plentiful. The Konde people round Karouga ornament their villages with rows of cotton trees. . . . The quality of the soil, except where it is alluvial, is poor, and where it has been long continuously under cultivation, as in the Usisya Plain, it appears to be quite exhausted." (p. 83.)

"Until four or five years ago, sheep and goats were the only food animals kept on the lake shore except at Karonga, where cattle were always abundant, but since then cattle have been successfully introduced into most of the villages. There is little doubt that with the practical disappearance of the buffalo, owing to the rinderpest, the tsetse-fly has also been got rid of from districts that were formerly infested." (p. 83.)

"Lion Point, which separates Florence Bay from Young Bay, presents, at the water's edge, a yellowish white face of soft rock, which has been hollowed out by the action of the waves, and by weathering. It contains a number of small caves and grottoes. Some of these are covered with crude representations in charcoal of native pictorial art, showing figures of men and animals in Egyptian-like profile, some stationary, others in motion." (p. 84.)

"The inhabitants [of the Tumbuka terrace plateaus behind the shore plains], who are of the Tumbuka, Henga, and to some small extent Poka tribes, show some skill in agriculture, cultivating successfully all the crops in common use on the lake shore." (p. 85.)

"The Tumbuka and Henga tribes are skilled in the smelting and working of iron. Their ruined furnaces, spread over a wide area in surprising numbers, give evidence both of the general prevalence of iron ore, and of the extent to which the working of it was carried on in the past." (p. 87.)

"Passing on now, we come to consider the mountain range which we saw in rear of the northern section of the Tumbuka plateau, to which the name *Nyika* is generally applied. *Nyika* is not a proper name, as used by the natives. It is simply 'the uplands,' and in that sense it is in very common use. Tanganyika, I venture to think, is nothing more or less than *Nyanja ya Nyika*, 'the lake of the uplands.'" (p. 87.)

"The Poka inhabitants of the Nyika plateau, probably the aborigines of the country, and very low in the native scale of civilisation, have little skill in cultivation. Keeping a few goats and sheep, more for barter than for use, they subsist mostly on pease. Their huts are built with a view to concealment, and are formed by scooping out the ground, and covering the hole with sticks and turf. Placed, as many of them are, among the heaps of rock *débris*, it is almost impossible to detect them from any distance. On the west, the gardens are made in the open, but near the east face they are to be found on the steep sides of the gorges." (p. 88.)

"As a whole, the district, which I have been describing, is very thinly peopled. The inhabited country is only a fraction of the uninhabited. From the head of the Henga valley to the Rumpi River there is not a single village. The few Poka villages scattered over the Nyika plateau are hardly worth counting as occupations. The Vipsya [the southern extension of the Tumbuka plateau] is entirely without people, and in the far west, until the traveller has descended a long distance into the Loangwa valley, he rarely encounters more than two or three villages in a day's march. The great centres of population are Bandawe among the Tonga tribe, Ekwendeni and Hora among the Ngoni and Tumbuka tribes, Kondowi among the mixed Henga and Poka, and Karongu among the mixed Henga and Konde. No exact census has yet been made." (pp. 88-9.)

J. L. M.

Central Africa.

Lloyd.

In Dwarf Land and Cannibal Country. By A. B. Lloyd. London: Fisher Unwin, 1899. 8vo. pp. 385. Price 21s.

Mr. Lloyd's route starts from Zanzibar, or takes him through German East Africa

to Uganda. His object was to take up lay missionary work under the Church Missionary Society in Taro, west of Uganda; but the Soudanese rebellion deranged his plans, and, his health giving way, he was ordered home. He decided, however, to return by way of the Congo, and so to explore a new bit of the dense forest country of Central Africa. He was fortunate in establishing friendly relations with the pygmy people of the forest, and was able to collect a considerable amount of information as to their habits and beliefs, though he was not allowed to approach their settlements. He found them to be about 4 feet in height, but powerfully built; "broad chested, with muscles finely developed, short thick neck, and small bullet head; the lower limbs were short and massive to a degree. The chest was covered with black curly hair, and most of the men wore thick black beards. Each carried either bow and quiver of arrows, or short throwing spears. Round their arms they wore iron rings, and some of them had these round their necks also. The women were very comely little creatures, and most attractive, with very light skins, lighter even than the men, being of a light tan colour; they had the usual flat nose and thick lips of the Negro, and black curly hair; but their eyes were of singular beauty, so bright and quick and restless they were, that not for a second did they seem to fix their gaze upon anything. They were smaller than the men."

The "Cannibal Country" which gives to the book the second half of its title is that of the Bangwas, between Avakubi and Basoko. Here too Mr. Lloyd succeeded in making friends with the natives, and was much impressed with their "great depth of character," from which he hopes great things later on.

The book contains several good maps, and is well illustrated, though a canoe accident destroyed a number of Mr. Lloyd's best plates.

J. L. M.

South Africa.

Keane.

29 *The Boer States: Land and People.* By A. H. Keane, F.R.G.S. London: Methuen and Co., 1900. 8vo. pp. 313. Presented by the Author.

Mr. Keane may fairly claim to have written a book of more than ephemeral value. He has approached his subject with competent knowledge and an open mind, and has fairly and successfully, as we conceive, to be just to the Boers as well as to the other races inhabiting South Africa. His account of the features of the country is concise, but to the point, and in his account of the Boers he shows very instructively how racial origin, and system of government, no less than geographical environment have moulded their character, mental and physical. The book is one which well repays perusal, and is sure to correct opinions hastily formed on imperfect or one-sided information.

E. G. R.

South Africa.

Hartland.

30 *On the Imperfection of our Knowledge of the Black Races of the Transvaal and the Orange River Colony.* Communicated by E. Sidney Hartland, to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 10th, 1900.

This important paper was designed to lead to a discussion of the legal and social status of the native races of South Africa, in view of the legislative and administrative changes which must follow the recent annexations. Our information on the customs, institutions, and beliefs of the native races of those countries is derived chiefly from fragmentary notices by missionaries, which are not to be implicitly trusted. The black peoples of South Africa are Bantus and Bushmen Hottentots. Though there was a general similarity of custom among them all, yet there are important differences of which we know little. After going into an account of the punishment

of theft, Mr. Hartland discussed the marriage customs. The prohibited degrees of kindred appeared to be much wider than with us, though most of the tribes were polygamist. One of the modes of oppression of blacks in the Transvaal had been the refusal to recognise those marriages. That policy we should be compelled to reverse; and we must start by informing ourselves what marriages were regarded by the natives of each tribe as legal. The most valuable evidence we possessed on the subject was contained in the report of the Commission appointed by the Cape Government twenty years ago. In this they had information on the custom of delivery of the bride, known as "Lobola" or "Ukulobola," and the question was whether the transaction was a bargain and sale of the bride, and, therefore, according to our law, immoral, or if not, what it was. A church missionary of twenty-three years' experience described it as being the "direct sale of the girl" in its purest state. But other missionaries had said they could not condemn the custom. He could not now go into the question of beliefs, which was, however, not less important than that of customs. We ought to govern the native races according to their own laws and not by ours. If we had so much difficulty in understanding their laws, no wonder they had so much difficulty in understanding ours. They were so much attached to their own customs, which were, indeed, part of themselves, that they could not imagine any others. Such, then, were some of the difficulties experienced by Europeans, even when long resident among the natives and intimately acquainted with them in regard to the real meaning of their institutions. An accurate study of the native customs, institutions, and beliefs was an urgent necessity both for missionaries and for purposes of government. In view of these difficulties the committee of the section of anthropology had decided to propose to the general council of the British Association, that that council should suggest to her Majesty's Government that as soon as the condition of the Transvaal and the Orange River Colony should permit, and prior to any legislation affecting the natives, a commission should be appointed to inquire (a) into the customs and institutions of the natives of those States; and (b) into the relations between the natives and the European settlers, with power to make recommendations for the purposes above referred to; such commission to consist, so far as possible, of persons familiar with native life in South Africa, and, in addition, of at least one person, unconnected with South Africa, of recognised eminence in the study of savage customs and superstitions in general.

In the discussion which followed:

Mr. CROOKE, in warmly supporting the proposal for an ethnographical survey of these races, ventured to caution its advocates against depending too much on official action. Except in some isolated cases the attitude of our Colonial and Indian Governments towards anthropological inquiries had been characterised by apathy and indifference. They had been satisfied to muddle along, and preferred to collect such information piecemeal so as to meet the necessities of some immediate legislative projects. Facts thus hastily collected were forgotten as soon as the need for which the effort was made had passed away. The business of that section was to persevere in endeavouring to induce the Indian and Colonial Governments to adopt a more sympathetic attitude towards ethnographical inquiries. The best chance of success in the present investigation was not to permit it to continue purely official, but to associate in the inquiry the leading anthropologists of South Africa, and to enlist the aid of all persons qualified by practical knowledge and experience to advise the commission on the questions which it would be its business to investigate.

Dr. HADDON congratulated Mr. Hartland on the temperate and judicial tone of his statement; as it was often difficult to express in a temperate manner the attitude

of white men to natives. He himself recently had the opportunity of seeing the other side of the picture; in British New Guinea that excellent late Governor, Sir William Macgregor, following the traditions of Lord Stanmore, then Sir Arthur Gordon, in Fiji, caused his resident magistrates to inquire into native customs, laws, and beliefs, and these investigations were printed in his annual reports. From New Guinea Dr. Haddon went to Sarawak, where the present Rajah, who was an irresponsible sovereign under the protection of Her Majesty, carried on the system of government inaugurated by that remarkable man Rajah Sir James Brooke. In Sarawak the native customary laws were respected by the Rajah. It was most important that we should take the present favourable opportunity to study and record the traditional laws and customs of the natives of the Orange River and Transvaal Colonies both for the sake of science and of the natives themselves. J. L. M.

West Africa: Jukos, &c.

Pope-Hennessy.

31 *Notes on the Jukos and other Tribes of the Middle Benue.* Contributed by Lieutenant H. Pope-Hennessy.

The writer was sent in September, 1898, from Jebba, on the Niger, to join an expedition under Captain Lynch, the object of which was to penetrate from Ibi, on the Benue, into the kingdom of Bauchi. He was at some disadvantage in collecting information, as he was but slightly acquainted with the Hausa language, and all his inquiries had to be conducted through an interpreter; but great pains were taken to verify the statements of the latter by all available means.

There are two routes from Ibi to Bauchi, the more usual going by Waze, but the shorter by Jepjep and Pongru. The latter, however (which was that traversed by the writer), is not popular with native traders, for it passes through the territory of three pagan tribes, the *Tangale*, the *Ūrku*, and the *Ligori*, which hold the hills and have a bad name for raiding weak caravans. In the same district the writer had the opportunity of observing the *Jukos*, who live about the town of Gatri.

In all cases the notes follow as far as possible the order of the questions in *Notes and Queries on Anthropology*.

I.—The Tangale Tribe.

This tribe inhabits the hills some fifteen miles east of the main road between Gatri and Pongru, and makes raids from its strongholds on caravans passing along it.

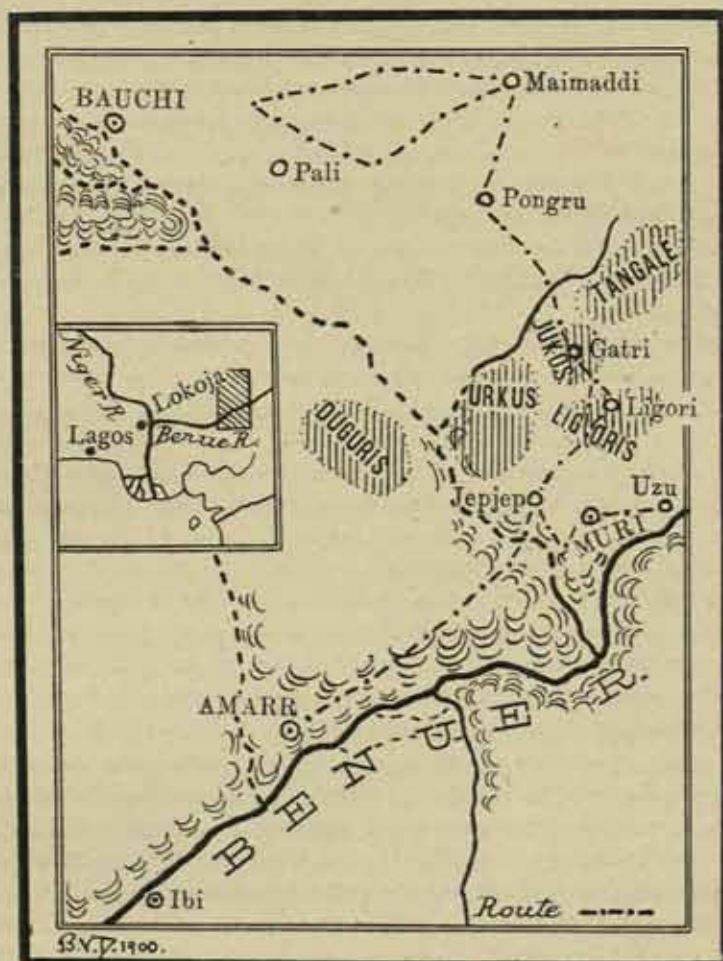
Mode of Subsistence.—The Tangale are farmers, and use a hoe with a long shaft for turning up the soil. They grow guinea-corn and a white cereal of which the writer could get no specimens. Besides these two grains they commonly eat a soup made of an infusion of the crushed leaves of the plant which is called *noné* in Hausa and *adau* by the Jukos. They also eat meat, and own cattle, sheep, and poultry. Fire is produced by flint and steel; no one is specially charged with the duty of preserving it.

These villages consist of mud-walled, grass-thatched huts. These lie scattered about, and are never surrounded by a wall, for the Tangale boast that no enemy can penetrate their country. The sexes live in separate huts, those of the men having low doors; but there is no separation of the sexes at meals, except as referred to later. The beds are made of a tree split in half and fashioned into rude planks.

Head-hunting and Cannibalism.—The Tangale are said to be head-hunters; and one of their customs is that no young man may marry until he can produce a head. They appear to stoop to stealing the heads of dead men and even buying them when unable to get them for themselves. While the author was at Gatri a native was executed and his body exposed on a hillock about half a mile from the

town. During the night the head was cut off as report said by a Juko of the town, who sold it to a Tangale friend of his, who wanted to marry, but had not yet killed a man. This Tangale would probably produce the head as a trophy of his own valour.

When they raid a caravan their first care is to cut off the heads of the slain and make off with them; then, if undisturbed, they come back for the bodies and the loot. The bodies are taken away to the neighbourhood of their villages, and all the grown men of the village (but not the women and children) assemble, and after a drinking bout of *peto* (beer made from guinea-corn) boil and eat the bodies. While doing this



Scale of Engl. Miles.

0 50

PORTIONS OF COUNTRY NOT SHADED ARE IN THE HANDS OF FULANI.

they sit on stones arranged in some pattern, either a circle or an oval. Separation of the sexes is rigidly enforced at these cannibal feasts, though there is nothing of the kind at ordinary meals.

The heads of their victims they put separately in little earthen pots, the flesh being previously cleaned off, and probably eaten, and the pots are then shut up and buried. But every new moon the Tangale brave who has a head thus buried grinds up a little corn, mixes it with water, and puts it into the pot with the head as an offering, at

the same time praying to the head. A brave who has several heads keeps them in separate pots, and goes through the same ceremony with each head.

Burial Customs and Religious Beliefs.—The Tangale bury their dead at full length, and nothing is interred with the corpse. An ordinary man is only mourned for by his friends, but a chief or king is prayed to for some considerable time—a year or so. They are said to believe in some sort of future state for both sexes, with ideas of reward and punishment; but clear and trustworthy information about their religious beliefs was difficult to obtain. They believe in several gods, their principal deity being *Bokange*. After him there are *Tamfa*, *Murshofa*, *Bāts*, and *Wambai*, who are peaceful gods and do not like war; and *Takurdo*, *Tangalan*, and *Tal*, who, with *Bokange* himself, are war gods, and help the Tangale in their fights. They have wooden idols, not carved to resemble the human face; these they put in a hut and surround with a circle of stones, on which the worshippers sit. They grovel to the idols and pray usually for good crops and many travellers to kill, at the same time offering fowls and food to the idol. They do not pray every day—only when they want something.

They have medicine men who can foretell future events by seeing them reflected in a bowl of plain water. They do not know of any magic to enable them to kill their enemies at a distance.

In common with many other tribes in this district, they believe that roan antelope, waterbuck, and giraffe are unlucky to kill, having “bad *juju*”; the elephant, however, has no *juju*.

Hunting and Fighting.—Their weapons are two spears (*narr*), a round shield of elephant hide (*kotong*), a double-edged knife worn on the right hip, and an axe with a half-moon blade set in a shaft some 30 inches long, which is worn over the left shoulder. They never use bows or arrows, and never poison their spears for fighting—though they do so for elephant-hunting.

Their method of attacking a caravan is to lie in ambush in the high grass by the roadside, with sentries up in trees. The sentry warns them of the approach of the caravan by a low whistle. When within stabbing distance they drive their spear into a man, and transferring it to the left hand, hack the head off with the half-moon axe. Having got the head, the successful Tangale makes off with it and puts it in a place of safety, being afraid of his own friends stealing it. Only when the danger is over do they come back to the bodies and booty. A noted warrior wears a leopard-skin on his back; a great hunter, on the other hand, has no distinguishing mark.

Clothing.—As a general rule the men go stark naked in the bush; as a protection from thorns, however, they tie a bit of sheepskin round their groin. A chief usually wears a cloth wrapper. The sole clothing of the women is a bunch of green leaves before and behind. They sometimes wear plain ivory bangles. The women mark their faces with many small circles, and the men their faces, arms, and body. The front teeth of the upper jaw are filed in both sexes on reaching puberty. The hair is cut so as to leave a broad band down the middle of the head. Both men and women wear bits of stick through their ears; the women also wear a stick in the cartilage of the nose. The hair of the men is reddened with a dye called *kwoya* in Hausa and *shannu* in Tangale.

II.—The Urku or Waruku Tribe.

This tribe lives among rocky hills a few miles to the south-west of the Tangale, and on the other side of the caravan road.

Appearance.—Two Urkus seen by the writer at Gatri were aged about seventeen

and twenty-seven respectively, and were 5 feet 7 inches and 5 feet 9 inches in height. The hair of the younger man was concealed by a cap; that of the other was cut short, except a low plaited band down the middle of the head, ending in a tail 3 inches long, which was brought over the forehead. The faces of both were marked by two lines of small vertical lump-cicatrices. Neither of them was circumcised, nor had his teeth filed. The most noticeable thing about their faces was the great breadth of forehead, the width between the cheek-bones, and the small and pointed chin. The younger man had a tight collar of horsehair round his neck, and both wore several bangles of white metal on their arms. They carried on their shoulders axes with triangular blades, covered with fine wavy lines.

Mode of Subsistence.—The Urkus are farmers and hunters. They live in round mud-walled huts with thatched roofs, and their villages are walled with loose stones. Their food consists principally of rice and guinea-corn, which they grow for themselves; millet (in Hausa *ghirro*) they do not know. The sexes eat apart, the women indoors, the men in the bush. Though the men feed apart, they do not mind a stranger seeing them eat, or eating with them; differing in this from the Jukos of Gatri, who are most careful not to be seen eating or drinking by any but the men of their own tribe.

In hunting they use spears and bows. One of their methods of hunting is as follows:—A shallow hole is dug in a game path; in this a running noose is placed, supported so that, when the beast puts its foot in the hole, the noose catches the leg. The free end of the rope is fastened to a log, which impedes the movements of the animal sufficiently to enable the hunters and dogs to overtake it, when it is despatched with spears.

Cannibalism.—The Urkus are commonly reported to eat the prisoners whom they take in fights with the neighbouring tribes. If many are taken it is said that they fatten up those who are not wanted for immediate consumption and keep them for future use. The writer heard, but only at second hand, that owing to the dearth of salt in their country this tribe is in the habit of putting slaves to work, grinding corn and so forth, until they perspire; they then rub the meat they are eating against the slave's body, making use of the salt in the perspiration.

A few Urkus are found as slaves in the Mohammedan states bordering on their country, but the Fulah are loth to travel in the Urku district because of their savage reputation and cannibal propensities.

Religion.—The Urkus met by the writer were very shy and frightened when asked about their religion. They appear to worship ten gods, but none of these are war-gods; they look after the crops and farms. The Urku word for a god is *Kindema*, and the name of their principal deity is *Kottong*. They pray at the time of the new moon, when they sacrifice sheep and fowls. Their idols are of wood, and are kept in little mat houses surrounded by a circle of stones.

III.—The Ligori Tribe.

This tribe lives to the south of Gatri and the Jukos, and south-east of the Urkus. The writer passed through the town of Ligori on his journey up country, but did not take any notes, as he hoped to do so on the return journey. Circumstances, however, compelled him to hurry through, and he had no further opportunity of studying these people.

They are marauders of a mild sort, and levy a toll on merchandise passing through their country. They are pagans, but not cannibals, and do not go naked like the Tangale and Urkus, but wear a cloth.

Their crops are very good, and in fact, wherever he went, north of the Benue,

the writer was struck by the industry and the good crops of the pagan tribes, which are everywhere better than in the Mohammedan countries of this part of Nigeria. But none of the three tribes here described grow millet at all, though it is so common in the neighbouring Fulah and Bornu states.

IV.—The Juko Tribe.

The Jukos are a pagan tribe of the Middle Benue River, and were at one time an united and powerful nation. Tradition has it that they ruled a large empire extending from Bauchi in the north to the Allah Katsena River, south of the Benue. At present they have sadly fallen from their high estate—if, indeed, they ever had any—and are more often met with as fishermen and canoe-men in the district around Ibi. Those, however, with whom the writer became best acquainted are the inhabitants of Gatri (or Gateri), where, not mixing with other tribes, they have in all probability maintained their customs in greater purity than elsewhere.

Mode of Subsistence.—The Jukos are mainly farmers, and their food consists of guinea-corn and yams, together with the game they take by hunting.

Some Juko elephant hunters use a poisoned spear fired out of a flintlock trade-gun, but these are the exceptions, the usual weapons being spears and arrows, which are dipped in a poison the basis of which is a shrub called *konkoni* in Hausa, which is a principal ingredient in all the poisons I saw, whether used by Jukos, Hausas, Fulahs, or Bornus. The Jukos do not use the *burtu*, the favourite device of the hunters around Ibi, which consists of a toucan's bill stuck into a piece of wood, covered with black leather, curved to represent the head and neck of the bird. By fastening this on to his forehead and enveloping himself in a dark indigo-dyed robe, the hunter is often able to stalk up to within a few yards of antelope. The Jukos of Wukari use snares and pitfalls, but the Gatri people do not. The Juko hunters of Sanderde, Wurio, Gassol, and Malla use a spear with a detachable iron head to which a rope is attached, called *uturu* in Juko and *songo* in Hausa. They use dogs for hunting small antelope or gazelle.

The Benue Jukos catch fish by driving them into V-shaped traps made of mats and placed in convenient shallows. They also use nets, but are said not to use hooks, though they spear fish.

Some natives say that there is no particular observance at cooking; others, that the men prepare their own food. They all agree as to the following statement:—

A Juko man will only let another Juko man see him eat, and will neither eat nor drink in the presence of any stranger or woman of his own people.

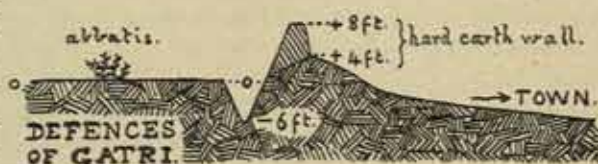
To eat their food the men go apart into the bush to little mat houses called *Kungoni*, of which each man has his own. The women and small boys eat in the huts in the towns, the custom of going apart to eat only being obligatory on boys of age to marry.

Fire is produced by flint and steel—no one in particular is entrusted with the duty of looking after it.

The houses are circular, 10 to 20 feet in diameter; walls of mud and straw with conical thatched roof. A family occupies several huts in a mat-walled compound. (a) The entrance hut is called a *samfa*. It is a large hut with two doors. Visitors are received and lodged there, but women never enter it, and a woman wishing to leave the enclosure has to go round the *samfa* instead of walking through it as a man would. (b) The owner of the house has a hut to himself, to which the wives come in turn, each for two nights. (c) The women have their own huts, several women living in the same, and their children with them. (d) A hut is set apart as kitchen. A wife

during the period of menstruation is not allowed into a man's hut, but has to live in a small hut outside the wall of her husband's compound, where food is brought to her and she stays three or four days.

In the houses the Jukos sit on mats, and only the king may use a sheepskin. The beds are like those of the Hausas as described by Rev. C. Robinson in *Hausa Land*.



The town of Gatri is of an irregular shape (perhaps meant for a square), is enclosed by an earthen wall, with banquettes, ditch, and thorn fence (*abbatis*) in front.

The principal cultivated plants are:—Guinea-corn (*dza*), millet (*ghirro* in Hausa and *meynu* in Juko), beans (*sur*), ground-nuts (*fenzan*), tobacco (*taba*). Indigo is not grown. Digging is done with iron hoes, and for reaping a small axe is used, which has a splayed triangular blade set in a club-like handle, and is called *pallam*.

Religion and Customs.—In his inquiries into the religion and customs of the Jukos the writer was very greatly hampered both by their shyness in speaking of such matters and by the Mohammedanism of his interpreter, to whom the religion of the Jukos was a work of the devil and not worth bothering about. The only Juko who gave much information was also not a very trustworthy informant. He entertained the writer and had travelled much, and, as he himself said, had lost the beliefs of his people without picking up any other. This man was the only Juko whom the writer encountered who would drink in his presence. From him he gathered that the Jukos believe in one god called *Sido*, who is thought by each man to be present in his own fetish room.

One method of praying appears to be as follows:—A man, having cut off the head of a bird (probably a fowl), winds himself up in rope till he is a sort of human cocoon and none of his skin is visible. Then with the bird's head in his mouth about dusk he runs out of his hut making a noise, through the bird's head, which sounds somewhat like "Hugh, hugh, hugh." When the women hear this they all run away, saying, "God has come."

Killing the King.—The town of Gatri is ruled by a king, who is elected by the big men of the town as follows:—When in the opinion of the big men the king has reigned long enough, they give out that "the king is sick"—a formula understood by all to mean that they are going to kill him, though the intention is never put more plainly. They then decide who is to be the next king. How long he is to reign is settled by the influential men at a meeting; the question is put and answered by each man throwing on the ground a little piece of stick for each year he thinks the new king should rule. The king is then told, and a great feast prepared, at which the king gets drunk on guinea-corn beer. After this he is speared, and the man who was chosen becomes king. Thus each Juko king knows that he cannot have very many more years to live, and that he is certain of his predecessor's fate. This, however, does not seem to frighten candidates. The same custom of king-killing is said to prevail at Quonde and Wukari as well as at Gatri.

As may be inferred from the above, the king is very much under the influence of his big men, so much so that if a present be given to him by custom, he is compelled to give some of it to each of his principal subjects. Before anything of importance is undertaken, a council is called of these principal subjects, and without their consent nothing of any importance is done. Every day the king gives two or three pots of

beer to his advisers. The writer was informed that before they decide anything they pray a great deal, and offer sacrifices, but of what sort his informant would not say.

Marriage.—A Juko wedding, which may take place at any time of the year, is accompanied by a feast to the friends, with much drinking of *peto* or guinea-corn beer. The price of a wife is high—two or three slaves. There are many slaves in Gatri, mostly Urkns or Duguris. If a wife does not get on with her husband she can demand to be sold to any man she likes, provided such a one is willing to buy her; the original husband then gets back his outlay. Should no one be willing to marry her she can still leave her husband, who thus loses the money he invested in her. The king has as many wives as he likes. The writer was told that they numbered from 100 to 1,000, and that they pass on to his successor, who keeps the pick of them, and sells those he does not want.

A king can take any unmarried girl he likes, but never another man's wife. If a Juko woman is caught in adultery with another man, the matter is brought before the king in council, the usual decision being that the seducer pays to the king half of the value of a slave and to the injured husband twice the cost price of the wife. He is then at liberty to keep the woman.

Land Tenure.—A man wishing to buy a farm goes direct to the owner and settles with him without reference to the king. Farms vary in size from the plot of land tilled by the farmer's wives to the large holdings of big men worked by many slaves.

The price of a farm which would take ten slaves to till it is about 10 "covers" of indigo-dyed native cloth, or in our money 30s. to 35s. A man who wishes to clear a piece of bush to make a farm does so without asking leave of any one.

When a Juko from elsewhere comes to Gatri the king allots him a piece of land gratis on which to build a house.

The price of a good house is about 10 covers (60s.) of native cloth and love gown—about 46s. or 50s. This is paid to the seller, not to the king.

A tax of 10 per cent. in kind on all crops is paid to the king, who himself owns farms. There is no tax on houses, horses, etc.

Succession.—One half of a man's personal property, such as horses, cut corn, etc., passes at his death to male heirs, the other half to the king. When a male dies without male heir, the king takes one half of his farm, the other half going to the female heirs. If he has a brother, the brother takes the land, giving the boys a small portion.

Administration and Justice.—The care of the town wall is entrusted to the people of the town, each man being allotted a section, for the good order of which he is responsible.

Theft is punishable by the king seizing the culprit and his wives as slaves, and confiscating his property to himself. The injured man gets nothing.

Arts and Manufactures.—These are practically confined to the manufacture of rough hand-made pottery and of guinea-corn beer, which in Hausa is called *peto*, and by the Jukos *jais*, and of tobacco and snuff; with the latter they are accustomed to mix potash. Salt is imported.

Jujus.—The Jukos put faith in "medicine" and charms as helps to hunting. For instance, a Juko hunter told the writer that the night before he goes to hunt elephants he goes apart into a little hut (fetish house?), and makes offerings and prayers to a "stick" (he was speaking Hausa and used the word *itachi*), saying, "I want blood, I want blood." He then takes a "medicine"—which is different for different animals—and making four cuts in his left arm, rubs the "medicine" in. This helps him to see the beast next day. From various Hausa and Beri Beri (Mohammedan)

hunters the writer compiled the following list of *juju*s for game:—The lion, leopard, bush-cow, rhinoceros, elephant, hartebeeste, gazelle, oribi, wart-hog, and hippo have no *juju*. The *juju* of a giraffe is in his head, so it is very bad luck to kill him, and when hunters kill him they leave his head in the bush, though they bring in the rest of the carcass for sale; nor will they touch the head on any account. The writer was very anxious to get a complete specimen of the beast, as it is reported to be of a different species to that of South Africa. But though he was able to buy some bones, the tail, and a piece of hide, no price would induce the hunters to bring him the head. The tail is a great medicine for headache and vertigo; the ailments are cured by tying it around the head of a sick person. It is worth about twelve shillings up country and more in big towns.

To kill the roan antelope is dreadful bad luck. The writer's guide—El Hadji—killed one once after four shots, "so strong him *juju* against powder." Within a month two of his slaves died. A friend of his—an Ibi hunter—shot one once, and for three months afterwards was unable to shoot straight. So he went to a medicine-man, who for ten shillings' worth of cloth gave him medicine to wash himself in, which killed the *juju*. Another young hunter wounded a roan antelope at night; he went home and told his father—an experienced veteran—who said, "You are not fit to kill a roan." The young man next morning followed the blood trail to the foot of a tree, where he found a woman squatting on the ground. He ran home frightened to his father, who gave him medicine against roan antelope *juju*, and then returned to the tree. The woman was still there, so he took up a stick and beat her, saying, "You are the bad *juju* of a roan antelope"; the woman vanished, and a roan lay dead before him.

The waterbuck have much the same *juju* as the roan antelopes, but weaker, so that hunters can kill them by wearing certain charms. The duiker has very bad *juju*; by night he carries a bright light between his horns. The cob antelope has only a feeble *juju* which can be warded off by charms.

If a man shoots a koodoo and goes up to the body, he will die. The thing to do after killing the koodoo is to go to the nearest village, and in course of conversation say you saw vultures hovering over such and such a place—"there must be a dead beast there." Some of those who hear this will innocently go there; the wily hunter then follows, and taking care not to be the first to find the body, gets a share of the meat, the *juju* of which is powerless, as it does not know who slew it.

West Africa; Yorubas.

Stone.

In Africa's Forest and Jungle; or, Six Years among the Yorubas. By Rev. R. H. Stone. Edinburgh: Oliphant, Anderson and Ferrier, 1900. 8vo. pp. 274. Price 3s. 6d. Presented by the Publishers.

32

This is an interesting account of the experiences of a missionary in Western Africa. The author seems to have little taste for pure ethnological inquiries, but his photographs of the native races have some value. Anyone who has read Colonel Ellis's classical account of the beliefs of this people is not likely to add much to his knowledge by reading this book. But it is written in a simple, unpretending style and gives a graphic account of the rather ghastly experiences of a missionary among a singularly brutal race.

W. CROOKE.

Alphabet.

Clodd.

- 33** *The Story of the Alphabet.* By Edward Clodd. London: Newnes, 1900. Sm. 8vo. 234 pp. Price 1s. Presented by the Publisher.

This book appears at an unfortunate time. Had most of it been written fifteen years ago it would have been greeted as a final summary of the certainties of the subject. Were it to be written fifteen years hence there would probably be much changed of those supposed certainties. Had it even been written a year later, the great Cretan discoveries of early writing would have given a different complexion to it. This great and rapid change in our knowledge is the hardship, and nowise the fault, of the author; and if the publisher demands for his shilling library to have the alphabet among some two dozen subjects, well, some one must do it to date, and let us be glad that it is Mr. Clodd who has ventured. But no one would choose the present time to make a pronouncement on so confused a subject.

The divisions of this volume briefly are, the mnemonics for ideas (such as American writing), the Chinese, the cuneiform, the hieroglyphic, the derivation of the Phœnician, the Cretan, etc., Greek and derivatives, and a mention of runes and ogams. The development of the principle of writing is carefully traced through the stages of mere impulses to memory (such as tying a knot in a handkerchief), the pictorial marks which suggest the subject, the ideographic, in which each sign has a constant meaning, and the phonetic, in which the sign may be used for a sound disconnected from its original meaning. A very practical summary is given of the main systems of ancient writing; but we can now say definitely that the Egyptians in the first dynasty were in the ideographic stage, with scarcely a trace of the phonetic.

On the Phœnician alphabet, De Rouge's theory of its derivation from the Egyptian hieratic is presented in some twenty pages, without a qualm until the last paragraph is reached, where the reader is warned that it may be all wrong. Looking at the table on p. 143 showing the comparison of the forms, carefully selected to agree as well as may be, the resemblances between the hieratic and the Phœnician are, however, far from strong. In the 22 letters 9 have scarcely any resemblance, 7 are doubtful, 4 are fairly alike, and only 2 can be claimed as really clear. This is far from satisfactory, and it is strange that so inconclusive a theory should have been so largely accepted. Now that we know how all these letters, and the larger stock kept up in Karia and Spain, were used continuously from 5000 B.C. or earlier, the Phœnician connection has sunk to its own place as merely a late assortment of material which was well known long before.

We are yet learning, and have much to learn, about the sources of the European alphabet; but for the present this little book will familiarise the questions to many who would not otherwise have heard of them.

W. M. F. P.

Progress of Invention.

Iles.

- 34** *Flame, Electricity, and the Camera: Man's progress from the First Kindling of Fire to the Wireless Telegraph and the Photography of Colour.* By George Iles. 8vo. pp. 398: illustrated. New York. Doubleday and McClure Co., 1900. (Presented by the Author.)

The title of Mr. Iles' book sufficiently explains its character. It is an attempt to indicate in a popular style the way in which one stage of human invention leads to another. It contains, among many other topics, a summary of methods of fire production, a note on the use of composite photography to determine racial types, and some examples of photographic colour printing which are much in advance of what appears to satisfy us in this country.

J. L. M.

AUSTRALASIA.

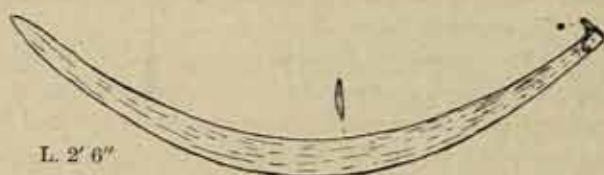
North Queensland.

Edge-Partington.

Note on a Wommera from North Queensland. Communicated by J. Edge-Partington.

35

When in North Queensland in 1897, I purchased from a dealer in Cairns an unusual form of wommera, either made in imitation of a boomerang or out of an old one. Among my photographs of Queensland natives I have one in which this form of wommera appears in the hands of a native inhabiting the scrub district between Townsville and Cooktown. It is of a wood similar to that from which the large swords from this district are made. The peg is of wood, circular in section, and is kept in position with "black boy" gum.



Tasmania.

Moir.

On the Stone Implements of the Natives of Tasmania. Communicated by J. Paxton Moir to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 5th, 1900.

36

The author describes recent excavation in former camping grounds and other places of native resort, which yielded, at a depth of a few feet, hand axes, knives, and other implements of chipped, unground stone; and also large numbers of concave scrapers and groovers, which were no doubt used for shaping spears and for grooving club handles for the grip. The paper will be found, in full, in vol. xxx of this *Journal*.

Tasmania.

Tylor.

On the Stone Age in Tasmania, as related to the History of Civilisation. Communicated by Professor E. B. Tylor, F.R.S., to the Anthropological Section of the British Association for the Advancement of Science, Sept. 5th, 1900.

37

The author considered the results to be arrived at upon the Tasmanian stone implement problem in its present condition. It now becomes clear that the natives of Tasmania illustrate the culture of the Stone Age at a period of development even below that of the Palæolithic Man of the Mammoth Period in Europe. It thus becomes important to put compactly the elements of Tasmanian life, as involving a claim to be considered as the condition coeval with the lowest available record. How the Tasmanians with their house and boat building, fire-making and cooking, basketry and leather work, rude tools and weapons, combined with a mythology which with its star myths and doctrine of nature-spirits, and an animistic religion culminating in polytheism, present a picture of man's life on the earth, which though far from primitive is perhaps the earliest which is based on direct anthropological evidence.

In the course of the discussion which followed this communication, Mr. H. Ling Roth said that some eighteen months ago he had received from a Yorkshire gentleman, Mr. J. Backhouse Walker, an account given by an old Australian settler, who in his youth had come across a group of black fellows whilst they were actually engaged in making these stones. The first process was simply to split them by hurling them violently on the rocky ground, and some stones were at once used in this rough

shape for cutting up kangaroo meat, whilst other stones were prepared by chipping. At one period, doubtless the Tasmanians covered the whole of Australia; and they were subsequently almost swept away—only scattered representatives being left in small areas—by another race.

Tasmania.

Fysh.

- 38** *Tasmania: Primitive, Present, and Future.* By Sir Philip Fysh, K.C.M.G., Agent-General for Tasmania. From the *Journal of the Royal Colonial Institute*, XXXI, 75-102.

This is a paper read before the Royal Colonial Institute, on January 16th, 1900. It contains (pp. 76-80) a full and accurate account of the early history of European enterprise in Tasmania and of the disappearance of the aborigines.

J. L. M.

New Zealand.

Schurtz.

- 39** *Schnitzereien der Maori aus dem Städtischen Museum in Bremen.* Von H. Schurtz. (*Globus* LXXVII, pp. 53-8.) With fourteen photographic illustrations. Presented by the Author.

This is an interesting article on the subject of Maori ornament, based principally upon a series of modern carvings executed to order by *Te Tuhi*, one of the last of the Maori carvers in wood. The series forms a complete set of beams and rafters for a typical Maori house, which is by this time erected in Bremen, presumably on the premises of the City Museum. Mr. Schurtz begins by noticing that the designs employed in painting flat surfaces are different in character from those which occur in carved work. They consist of a motive rather suggesting an anchor, and occur upon the early tattooed heads, suggesting that the change to the well-known scroll designs was first made in the case of tattooed heads, and then in the carved wooden figures representing human beings thus tattooed. Representations of human beings not being painted but always carved, the art of the painter would not be affected by the change, and thus the older style was preserved in painting, when it had already disappeared in sculpture. This theory, though ingenious, is not we think supported by facts, as the anchor-pattern undoubtedly occurs on carvings of some antiquity. A description of the component parts of a Maori house is then given, with the native names, and is followed by the interpretation of the various figures given by the carver, *Te Tuhi*.

The author expresses the hope, which will be shared by all interested in the early history of New Zealand, that the continuation of Mr. Hamilton's valuable work on Maori art will include an enumeration of the different Maori designs with their exact native names.

O. M. D.

New Zealand: Pataka.

Edge-Partington.

- 40** *Note on a Pataka in the Auckland Museum, New Zealand, together with a further Note on a Carved Canoe-Head in the British Museum.* Communicated by J. Edge-Partington. (Plate E, fig. b.)

In my note on a carved canoe-head from New Zealand, which appeared in the last number of the *Journal* of this Institute, p. 305, I gave "snake" as an equivalent of the word "manaia." This was an unfortunate word to have chosen, as there are no snakes in New Zealand. A *manaia* is a mythical monster, corresponding to the serpent of the Garden of Eden. In the Auckland (N.Z.) Museum there is a fine *pataka* or village store-house, ornamented with the very oldest style of carving (except where restored at a later period), the side slabs of which are carved to repre-

sent the ancient Maori legend of the temptation of woman by the *manaia*. The slabs are carved from end to end with a row of male and female figures; between each is a *manaia* with its head turned towards the figures. The male figures are represented as turning away from the monster, while the female figures are turned towards the monster as if in the act of listening. The centre figure is composite, facing outwards, with a *manaia* on either side. In the carving of this monster on the canoe-head the snake-like neck is evidently drawn out to fit the required space.

New Zealand: Maori Scroll Pattern.

Edge-Partington.

On the *Genesis of the Maori Scroll-Pattern*. Communicated by J. Edge-Partington. (Plate E, fig. a.)

41

In sending me a photograph of a very ancient slab from a Pataka or store-house in the Auckland Museum, Mr. Josiah Martin suggests that this particular way of depicting the *manaia* is the genesis of the Maori Scroll. Mr. Hamilton also in his *Maori Art*, p. 158, speaks of these large spirals or scrolls as *manaia*s. So many suggestions have been made as to the origin of this particular pattern, such as the new fern fronds, the markings on shells, etc., that it is interesting to find yet another and one more likely to be correct. It is only by the study of these very early pieces of the carver's handiwork that we can hope to find a true solution.

New Zealand: cf. J.A.I. XXIX (N.S. II), 304-6.

Edge-Partington.

The Editor of the *Journal* regrets that by an unaccountable mistake the notes entitled "*New Zealand Kotahas or Whip Slings*," "*Carved Canoe-Head from New Zealand*," and "*On a Stone Battle-Axe from New Zealand*," printed in vol. xxix (N.S. II) pp. 304-6, went to press uncorrected by the author; and also that the second of them was wrongly ascribed to Mr. C. H. Read. In reality, both articles were contributed by Mr. Edge-Partington, who sends the following list of corrections:—

42

Page 304, line 23, for it	read these.
" " " 34, .. charged	" charred.
" 305, .. 40, .. at present in my possession	" in the British Museum.
" " " 41, .. C. H. Read	" J. Edge-Partington.
" " " 46, .. Aiyai in her	" Angus in his.
" 306, .. 10, omit the words at present . . .	resting-place.

Timor Group: Travels.

Ten Kate.

Verslag eener reis in de Timor-groep en Polynesië. Door Dr. Hermann F. C. ten Kate. Leiden: E. J. Brill. 1894. pp. 310. Presented by the Maatschappij ter bevordering van het Natuurkundig Onderzoek der Nederlandsche Koloniën.

43

This book, which is a record of travels in the Timor group in 1890, does not call for any special notice in these pages. It does not profess to give the scientific results of the expedition (cf. *Int. Archiv. Ethnog.*, vii, viii), which are merely sketched in a few pages at the end of the book; there are, however, twelve plates dealing with the huts, megalithic monuments, weapons, etc.

If the contents call for little notice here, the same does not apply to the style in which the book is got up. We are unfortunately too familiar with the unbound books which fall to pieces as soon as one has read one chapter. In this case there is the added misery of lack of index and table of contents. It should be made a penal offence for publishers to issue a book of this description. If a book is worth

writing and worth publishing, it is worth an index, otherwise the facts recorded are virtually lost, unless each reader makes his own index or analysis. It is certainly unworthy of a scientific society to issue such a book.

N. W. T.

New Guinea.

Biró.

44 *Beschreibender Catalog der Ethnographischen Sammlung Ludwig Biró's aus Deutsch-New-Guinea (Berlinhafen).* Published by the Hungarian National Museum, Budapest, 1899. 4to. With plates. Presented by the Author.

The authorities of the Hungarian National Museum at Budapest have made an excellent start in the series of descriptive catalogues of the ethnographical collections under their charge, and, if all subsequent publications of the series come up to the level of the first issue, a work of great importance and utility will have been offered to ethnologists, and one which should prove of much assistance in the proper classification of material in museums and private collections. The first instalment deals with the fine ethnographical collection made by Herr Ludwig Biró in German New Guinea (Berlinhafen), a collection which has evidently been made with considerable care, both in the selection of specimens and in the recording of detailed information regarding their use, varieties, their native names in different localities, and so forth. The text is bilingual, being printed in Hungarian and German in parallel columns, a useful feature, considering how few of those interested in the subject are acquainted with the former language. The illustrations are numerous and good, and, even in the absence of a regular index, it is easy to find a reference to any particular object or class of objects, as the text is conveniently divided into sections and sub-sections under appropriate headings. The clothing and personal ornaments are described in detail, and in some instances a very full account is given, with illustrations, of the process of their manufacture, as, for instance, in the case of the making of shell armlets by means of the cylindrical drill of bamboo, which is weighted with a stone, and is rotated upon the block of *tridacna* shell until a central core is cut right out, the end of the bamboo being kept from slipping by means of an ingenious binding of creeper wound round the shell-block, while the friction is augmented with moistened sand-grit. This interesting process has been described both by von Luschan and Parkinson, but fresh details are given here.

Domestic utensils and tools are treated of in similar detail, and following these are sections devoted to religion, magic, dance, etc.

Lastly, the various forms of weapons—cassowary-bone daggers, bows and arrows, lances, and fish-spears—are described minutely, and particular attention is paid to the ornamentation upon the different portions of arrows, which is carefully studied and analysed, so as to demonstrate the different *motifs*, their derivatives, combinations, and so forth, in a classification by morphological affinities.

References to literature are given freely. A small map of the region specially dealt with would have been a useful addition, and would have added to the value of the publication, which may be accepted as a very serviceable treatise upon the ethnography of the Berlinhafen district, as illustrated by the collection made by a careful and painstaking observer. Such non-portable objects of use as dwellings, canoes and others, whose size was such as to prevent their being collected and sent to the museum, are not dealt with, but it is to be hoped that these may also receive attention, and be described in a detailed manner, in the same way as the objects actually forming the collection itself.

HENRY BALFOUR.

Solomon Islands.**Edge-Partington.**

Note on an Object of Unknown Use from the Solomon Islands. Communicated by J. Edge-Partington. (Plate E.) **45**

The subject of this note was recently presented to the British Museum by Rear-Admiral Hand, who obtained it from one of the Solomon Islands when on a cruise in the South Pacific. Unfortunately he cannot give any more definite information than this. I have communicated with the Rev. Alfred Penny, the author of *Ten Years in Melanesia*. He thinks that it was probably made at San Cristoval or Malayta, as he has seen clubs of similar shape at both islands, though never one with so beautiful a pattern. In his opinion it is a dancing club, and the perforation on the upper edge is for attaching bundles of feathers, shells, or dried beans to chink like castanets. I cannot, however, bring myself to believe that this was the use to which it was put. I am rather inclined to think that he is confusing it with the glaive-like dancing club common to that part of the group (*Album*, 227, No. 1). In the first place there is no natural grip, nor does the narrow portion below the butt end show any signs of wear; the edges, too, are squared and sharp. The whole is of uniform thickness, about $\frac{1}{8}$ th of an inch. The engraving on either side is almost identical, and similar to that on a dancing club in the form of an axe which was labelled Treasury Island, Bongainville Straits (*Album*, 2nd series, Plate 125, No. 1), but which Mr. Parkinson thinks is more likely to come from Būka.

The representation of a human head is also suggestive of this same locality.

It will be noticed in the illustration that the carving of the lines of the face are continued down the shaft terminating in spirals. In the Godeffroy Catalogue, Plate VI, No. 3, is a similar carving on a club from Būka. In the British Museum, again, is a club with a similar design (*Album*, Plate 250, No. 1), which, although at one time supposed to come from New Britain, is now attributed to the Solomons. In the museum at Milan are somewhat similar clubs labelled New Georgia.

The perforation on the upper edge is in my opinion too large for merely attaching bunches of feathers, etc. That a band passed round the "implement," and was kept in position by the two projecting horns, is evident from the surface of the wood being highly polished by friction at this point, the only place on the whole of the surface where there is any sign of wear. The object was meant to be suspended, but for what purpose it is difficult to say.

Since the above went to press, both Dr. Codrington and Mr. Alfred Penny have seen the subject of this note, and pronounce it to be a *Tindala* emblem, or object of veneration representing a deceased ancestor.

J. E.-P.

Rotuma: Physical Anthropology.**Gardiner: Duckworth.**

On Crania collected by Mr. J. Stanley Gardiner in his Expedition to Rotuma. Communicated by W. L. H. Duckworth, M.A., Lecturer on Anthropology in the University of Cambridge, to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 11th, 1900. **46**

The subject of this communication is a collection of nine crania from the above-mentioned locality. The results of a craniological investigation show that while considerable individual differences exist, there are at least two types of skull to be met with in the island of Rotuma. The types are, firstly, a variety of the form of cranium usually found among Polynesian natives, though possessing certain characteristics which may almost be described as Mongolian; and, in the second place, the type of cranium characteristic of Melanesians occurs in Mr. Gardiner's collection.

That such different types should be met with in one small island is in accordance with what would be expected on *a priori* grounds, when it is considered that Rotuma is situated at the centre of contact of three important ethnical areas, viz., the Polynesian to the east, the Melanesian to the south-west, and the Micronesian (where Mongolian elements are discernible among the natives) to the north-west.

Hawaii P : Featherwork.

Edge-Partington.

47 Note on some Feather-Mats in the British Museum. Contributed by J. Edge-Partington. (Plates F, G.)

Professor Brigham in his *Hawaiian Featherwork* refers to, and figures, (Plate VI), two feather mats in the British Museum, which together with a coronet of similar manufacture form the subject of this note.

Professor Brigham first saw these when on a visit to this country, he then considered that they were not Hawaiian; but since, failing to find any more likely locality, he places them as "mats on which offerings were made to the God Kukailimoku," until a better use can be found for them.

If these were merely mats I fail to see the use of the tying cords fastened to each end; why, too, should the makers have departed from their usual custom of mounting feathers on a network of Olona fibre, a much more suitable foundation than the thick rows of fibre of which these mats are made, wrapped and sewn together; a form of manufacture, moreover, which is not in vogue in Hawaii. Professor Brigham says that the patterns are quite unlike those used in the feather cloaks, but I think one can go further than that, and say that they are unlike any known patterns from Hawaii. We must therefore try and find another home for them, and I would suggest Tahiti, and that their use was a protection when fighting. My reason for this attribution is that there are in the British Museum long, oblong boxes formerly supposed to come from Hawaii; by an inscription, only partly legible, on one of them in George Bennet's handwriting, we now know that these boxes are Tahitian. The inscription is as follows:—"A native . . . box made of the wood of the breadfruit tree . . . containing the war-like ornaments . . . Hautia, presented by him to G. Bennet, 1822, and which he says were worn by . . . also and preceding kings of Huahine." This particular box (Plate G, Fig. 2) was received, with other Eastern Pacific specimens, from the Sheffield Literary and Philosophical Society; the specimens originally in the Museum are without history, as are also the feather ornaments now under discussion. It may well be therefore that they were received at the same time, and possibly formed a portion of one of the early collections either of Captain Cook or Sir Joseph Banks.

As against this theory Williams in his *Missionary Enterprises*, p. 498, says that "at Tahiti and Hervey Islands there are but few varieties of the feathered tribes; and these are not remarkable either for the beauty of their plumage or for the sweetness of their notes"; if therefore the mats and coronet were manufactured in the Tahitian group, they must have been from imported feathers.

Failing Tahiti there is the Island of Rurutu, in the Austral group, "the people of which are distinguished, above all others in these seas, for their taste and skill in finery of every kind, from the feathered helmets of their warriors to the carving on their canoes. . . . In manners, dress, and language, they very nearly resemble the inhabitants of Tahiti and Huahine" (*Tyerman and Bennet's Voyages*, 1831, Vol. I, p. 496).

The only reason for placing these objects in the Hawaiian section, until some

definite locality is obtained, is that the feathers used are evidently from the same birds as those from which the Hawaiians gathered their stores.

It is to be hoped that some of our readers may be able to throw further light on the subject.

Gambier Islands: Languages.

Tregear.

Mangareva Dictionary, Gambier Islands. By Edward Tregear. New Zealand, 48
Wellington, 1899, pp. 121. Presented by the Author.

This is a very useful collection of words representing the language of the Gambier Islands in the southern portion of the Panmotu Archipelago, and almost on confines of Polynesia, Easter Island being the only important island lying further east. The language is purely Polynesian and differs in many respects from the Panmotu of the same region, of which language the same author has already published a similar dictionary. (Wellington, N.Z., 1895.)¹ The islands form a part of the French possessions in the Pacific, and the missions are those of the Roman Church; hence the language, unlike that of the other important groups, is not represented by any Bible translations. This fact adds greatly to the value of such a list as that which Mr. Tregear now publishes. The principal example of the Mangarevan language which previously existed is that contained in Hale's *Philology of the United States Exploring Expedition*, published at Philadelphia in 1846. Hale's material for the language consisted of a few mission translations and a vocabulary by M. Maigret, a former missionary. M. l'Abbé Mosblech had published in 1843 a *Vocabulaire Océanien*, the title page of which stated that it referred to the languages of the Sandwich, Marquisian and Gambier Islands, but the work itself contained no specimens of the language used in the latter group. The Rev. S. J. Whitmee in 1874 contemplated the publication of a Comparative Dictionary of the Polynesian Languages, and in a paper read in that year before the Philological Society, he stated that M. Pinard was then contributing material in the Gambier Island language. No more than specimen pages were ever published of Rev. S. J. Whitmee's dictionary, and these contained no specimens of the Gambier language. The Rev. S. Ella's paper in the *Journal* of this Institute (vol. xxix (N.S. ii) p. 154), contains a Mangarevan list of which I have not been able to trace the origin, but it agrees literally with that of Mr. Tregear.

The author states in the introduction that the language is nearly identical with the Maori, but it is much more closely akin to the Rarotongan than to Maori, and differs from the latter in several details. Both Mangarevan and Rarotongan have no sounds representing the *s* or *f* of Samoan, whilst the Maori represents those sounds by *h* and *wh* respectively. In Hale's vocabulary of Mangarevan *h* was not used, but Mr. Tregear uses it sometimes for the *wh* of Maori and *f* of Samoa, the same words being often used with or without the *h*, e.g., *haka*, *aac*, to tear; *hara*, *ara*, pandanus, etc. The origin of the Mangarevan people from Rarotonga was inferred by Hale from a native genealogy given to him by M. Maigret, which indicated that they came from Rarotonga about four generations after the settlement of the latter island. Hale noted that "the only points of any importance in which the dialect differs from the Rarotongan are, first, in the use of *ranga*, instead of *anga*, to form the participial noun, as *te ope ranga*, for *te ope anga*, the act of finishing; and secondly, in the use of *man* as a plural prefix. In both these points it resembles the Tahitian. Now if the Rarotongan emigrants who settled in Mangareva came, as is most probable, from that side of Rarotonga which faces towards the latter group (i.e., the eastern

¹ Cf. *Journ. Anthropol. Inst.*, xxvi, 1897, p. 204.

side), they were of the Ngati-Tangia, or Tahitian party, and may, at that time have preserved some peculiarities of their original tongue which were afterwards lost in Rarotonga, on a more complete intermixture with the Ngati-Karika, or Samoan party." (*United States Exploring Expedition*. Vol. vi, *Ethnography and Philology*, by Horatio Hale, p. 140.)

The author has not indicated the origin of his work, but it is presumably derived from the French-Mangarevan lists mentioned in the preface to his *Maori-Polynesian Dictionary* as derived from Mons. l'Evêque d'Aixeri. A few important words have been omitted, e.g. *maua*, the exclusive pronoun of first person dual. An English-Mangarevan index would have been useful, as there are no native texts to elucidate, and it is the equivalent of English words which will be most frequently required.

SIDNEY H. RAY.

New Hebrides.

Edge-Partington.

49 *Note on a Shell Adze from Ambrym Island, New Hebrides.* Communicated by J. Edge-Partington. With Plate H.

A very unusual form of shell adze has been presented to the British Museum by Captain Leah, R.N. Its elaborate nature and double blade seem to indicate that it was for ceremonial use only. The donor obtained it on Ambrym Island; last year the Museum purchased a collection which contained several objects from this island labelled "for use in the pig-killing ceremonies." These I figured (*Album*, 3rd series, Plate 63, No. 1) along with an adze with a terebra-shell blade made out of an old pig-killing club. It is probable therefore that the subject of this note was used on these occasions; it is quite certain that to use it as a tool would be impossible, nor do the edges of the blades show any signs of wear; the deepness of the carving would also weaken it considerably. The handle is in two pieces lashed together with sinnet, and the whole is covered with an incrustation of smoke.

J. EDGE-PARTINGTON.

Pacific Languages.

Schmidt.

50 *The Inter-relation of Melanesian, Papuan and Polynesian Languages:—*

1. *Über das Verhältniss der melanesischen Sprachen zu den polynesischen und untereinander.* Von P. W. Schmidt, S.V.D. [*Sitzungsbericht d. Kais. Akad. d. Wissenschaften in Wien. phil. hist. Classe.* Bd. CXL.] Wien. 1899. 8vo. 93 pp.

2. *Die sprachlichen Verhältnisse Oceaniens (Melanesiens, Mikronesiens, und Indonesiens in ihrer Bedeutung für die Ethnologie.* Von P. W. Schmidt, S.V.D. [*Mittheilungen d. Anthropol. Gesellschaft in Wien.* Bd. XXIX, 1899.] 4to. pp. 245-258.

The first of these well-considered treatises consists of a general discussion of the Melanesian and Papuan languages, followed by particular illustrations of the agreement between the Melanesian and Polynesian in grammar and vocabulary. In the second paper the conclusions of the first are discussed in their relation to the ethnology of the tribes of the Oceanic region. It will be convenient here to notice the first paper in some detail, with occasional reference to the latter. The author's material for his comparisons is mainly that contained in the Rev. Dr. Codrington's book on *The Melanesian Languages*,¹ and the present writer's *Comparative Vocabulary of the Dialects of British New Guinea*,² and paper on "New Guinea Languages" in the *Journal* of this Institute.³

¹ Codrington, Rev. R. H., *The Melanesian Languages*. Oxford, 1885.

² Ray, S. H., *Comparative Vocabulary of the Dialects of British New Guinea*. London, 1895.

³ Ray, S. H., "The Languages of British New Guinea," *Journ. Anthropol. Inst.*, August, 1894, pp. 15-39.

In the introduction to Professor Schmidt's paper, he sets in opposition the statements of the late Professor Friedrich Müller, of Vienna, and Rev. Dr. Codrington as to a residuum in the Melanesian speech which is non-Malay and non-Polynesian. Müller seemed to recognise this "residuum" (which he called Papuan), in some of the languages known to him when he published his great work on the *Grundriss der Sprachwissenschaft*,¹ but Codrington was inclined to think that the vocabularies did not disclose any ancient stratum of words in the Melanesian tongues, and that the comparison of grammar did not show any greater difference than was consistent with a community of origin. In his work, Müller set forth the languages of Nengone and Mefur as examples of Papuan tongues, and in his second section, Schmidt proceeds to prove and clearly shows that the Nengone is Melanesian as to its pronoun stems, its indication of number in the pronoun, in the expression of possession, and in enumeration. The relationship of the Mefur to Malay and Polynesian is regarded by Professor Schmidt as proved by Dr. Kern in his work on that language.²

In connection with this subject, it must be remembered that when Müller, Codrington, and Kern wrote, the existence of any distinct Papuan languages was not proved. There was no indication that in the Oceanic language region, outside Australia, any languages existed which could not be affiliated to the ordinary Malay, Polynesian or Melanesian groups in grammar, or which were totally distinct in vocabulary. Müller's assumption that Mefur and Nengone were Papuan languages, though erroneous, was to some extent warranted by indications of a strange element in their vocabularies, and it is even now by no means certain that they should be classed as purely Melanesian languages, in the same way as the typical languages of, for example, the Banks Islands, Northern New Hebrides, and Southern Solomons. Codrington expresses a difficulty in dealing with the languages of Savo in the Solomons, and of Santa Cruz, which place these in the same category as the Nengone and Mefur, as not falling in line with the general Melanesian form of speech. At the present time, however, the existence of undoubtedly non-Melanesian languages in the island of New Guinea is an ascertained fact, and the study of these may be expected to throw considerable light upon the question whether there ever was in the islands of Melanesia and Polynesia, pre-Melanesian languages of a similar character to the non-Melanesian languages now found in New Guinea. The structures of some other languages spoken in the extreme north and south of the Geographical Melanesia are also better known, and help towards a solution of the problem.

It may be permitted to the present writer, speaking with some knowledge of the peculiarities of the non-Melanesian languages of New Guinea, to state that whilst there seems to be little or no evidence of any survival in the modern Melanesian languages of ancient grammatical forms, there may be possible survivals of words to a greater or lesser extent. In all the non-Melanesian languages of New Guinea, the grammar is much more complex than in the typical Melanesian, and it would be a natural sequence that if there were pre-Melanesian languages of the same character as these, contact with a simpler language would result in the breakdown of the complex and use of the simpler grammar. Words, however, would survive, probably as names of things and actions for which the newer speech had no exact equivalents. It is noteworthy that if in any of the exceptional Melanesian languages a list be made of words which do not apparently belong to the common Melanesian stock, this list does not in any way agree with a similar one taken from other exceptional languages.

¹ Müller, Friedrich, *Grundriss der Sprachwissenschaft*. Wien, 1876.

² Kern, H., *Over de verhouding van het Mafoorisch tot de Maleisch-Polynesische talen*. Leiden, 1884.

Now diversity of vocabulary is also one of the characteristics of the non-Melanesian languages of New Guinea. There is no Papuan family of languages as there is a Melanesian or Polynesian family with related words and cognate grammar. There is no single Papuan *Ur-Sprache*. Hence, if there were Pre-Melanesian languages in the present Melanesian region, and those of similar character to the modern Papuan, any survivals of vocabulary should not be expected to show agreement between one language and another, or with the Papuan languages of New Guinea, whilst fragmentary survivals of grammar will only tend to give a peculiar character to those Melanesian languages in which they have been adopted. This subject deserves a fuller discussion than is permissible in the present review, and it would be well to wait for the publication of more material before any conclusion is adopted. Speaking with regard to unpublished material in his own possession, the present writer is of opinion that traces *may* be found of pre-existent languages in the Melanesian region.

In his third section, Professor Schmidt treats of the possessive suffixes in the Polynesian, Malayan and Melanesian languages. The substantial identity of these was pointed out by the present writer in a paper written in 1896,¹ which seems to have escaped Professor Schmidt's notice. The existence of these suffixes in Polynesian, though denied by Müller, admits of no dispute, and as was shown in the paper on the "Common Origin," forms a strong argument for the common origin of the Polynesian, Melanesian and Malayan languages. Professor Schmidt discusses the relationship of the suffixes *ku*, *mu* and *na*, to the personal pronouns of the three languages. He, however, regards the *a* or *o* to which the suffixes are added in Polynesian as genitive particles, whereas they are really nouns, as may be seen by comparison with the other languages.

The next section on the position of the Melanesian language with regard to the Polynesian, was also to some extent anticipated in the present writer's paper on the "Common Origin." As in that paper, Professor Schmidt points out that the difference in the use of the possessive words and the transitive suffixes are evidence that the Melanesian is an older form of speech, though he has not shown the substantial identity of the so-called Polynesian passive terminations with the Melanesian transitives. He brings forward, however, an additional argument based on the change of the original trial or quadral number of the pronoun into a simple plural.

Professor Schmidt next discusses the origin of the Polynesian languages. He comes to the conclusion that they are most closely connected with those of the Southern Solomon Islands (Florida, Bugotu of Ysabel Island, and Vaturanga of Guadalcanar Island), and that with them they form the latest group of the Melanesian languages. The agreement is shown to consist as follows:—1. Nearness in phonology; (frequency of vowels; disappearance of *q* = *kpw*, *gbw*, and the nasal *m*; appearance of *f*); 2. Greater community of words; 3. Greater likeness of the personal pronouns; 4. Use of the trial for the plural; 5. Identity of the personal article; 6. Absence of the so-called independent form of the noun; 7. Likeness of the genitive construction; 8. Identity of the local particle; 9. Likeness of the verbal particle of present-aorist; 10. Greater likeness of the reciprocal verbal particles; 11. Existence of the decimal system of numerals, and identity of the words for 6–10 and for 100.

The Melanesian languages of British New Guinea are regarded as coming between the New Hebrides and Solomon Island groups, the tribes speaking them arriving first in the Louisiade Archipelago and then spreading along the New Guinea coast as far as Cape Possession. An older stratum of Melanesian languages (*i.e.*,

¹ Ray, S. H., "The Common Origin of the Oceanic Languages," *Jour. Polynesian Society*, v, 1896, pp. 58–68, and also *Hellas, Revue Polyglotte Internationale*, 6^{me} année, 1896.

those for which the present writer suggested the provisional name of Melano-Papuan) had previously occupied the Louisiades, and the languages of South Cape, Sariba, East Cape, and others in that neighbourhood, remained in contact with this older stratum and so developed more slowly than the related languages further West (Motu, Maiva, Mekeo, etc.), these latter developed further in the same direction as the Polynesian with regard to changes of phonology and expulsion of consonants.

The supplement to Professor Schmidt's first paper deals briefly, and his second paper more fully, with the anthropological relations of the Melanesians and Polynesians. He refers to, and quotes Guppy's book on the Solomon Islands,¹ and Codrington on the Melanesians,² in order to show that there is an approximation of the Southern Solomon Islanders to the Polynesians. The points illustrated in which these agree, and so differ from the general Melanesian, are stated as follows:—1. Bodily structure (lighter colour, greater height, variation in cephalic index); 2. Hair (less frizzly, and growing in larger spirals); 3. Tattooing and personal adornment (more attended to); 4. Houses and boats (more elegant and ornamented); 5. Sociology (absence of exogamous divisions, existence of father-right); 6. Religious conceptions, sacrifices and tabu; 7. Less use of the bow and arrow.

Some other points of great interest are touched upon in the second paper. The oldest Melanesian languages are indicated as those of the extreme southern and northern regions, New Caledonia and the Loyalty Islands, and the north-east coast of German New Guinea. Professor Schmidt regards the absence in these languages of the trial form of the pronoun and the use of a vigesimal system of numeration, as marks of antiquity.³

With regard to the position of the Mikronesian languages, it is suggested that there may possibly be an approach by some of them to the Indonesian, though the lack of published material for a proper study of them is lamented. The present writer's unpublished material shows that these languages come between the Indonesian and Melanesian, and references to their connection with the latter will be found in his notes to Rev. E. T. Doane's paper on Ponape and Hawaii.⁴

The Indonesian languages are briefly passed over, as are also the questions of Negrito speech, and the relations of the island tongues to the Mon-Anam languages. In these directions there is still much work to be done.

Professor Schmidt suggests the adoption of the term Austronesian to describe the position of the whole of the languages including the Indonesian, Mikronesian, Melanesian, and Polynesian; the term Oceanic being abandoned because of its limited application in Germany as equivalent to Polynesian. There seems to be a certain amount of difficulty in adopting this term Austronesian, for the islands where these related languages are spoken, lie as much to the east of Asia as south, and there is, perhaps, more danger of confusion with the very different Australian by using a similar word, than there would be with the term Oceanic used in its English

¹ Guppy, H. B., *The Solomon Islands and their Natives*. London, 1887.

² Codrington, Rev. R. H., *The Melanesians—Studies in their Anthropology and Folklore*. Oxford, 1891.

³ In this connection it may be noted that the language of Tanna (referred to by Professor Schmidt as approaching the older languages) not only has a trial form of the pronoun, but also a quadral form, and the undoubtedly Polynesian language of Futuna in the New Hebrides, also has a quadral form. A form of the trial is also found in the Loyalty Islands, Language of Lai (Uvea Island).

⁴ Doane, Rev. E. T., "A Comparison of the Languages of Ponape and Hawaii," *Jour. Roy. Soc. New South Wales*, xxvi, p. 420-453.

sense. Probably the most exact descriptive term would be that used by Logan, who called the related languages stretching from the Indo-Chinese seas to the Eastern Pacific, by the inclusive name of Indo-Pacific.

In Professor Schmidt's paper, he speaks of the Melanesian languages of Torres Straits, when those of British New Guinea are meant. The real languages of Torres Straits are very different from the Melanesian, and the two regions should be clearly distinguished.

SIDNEY H. RAY.

NORTH AMERICA.

America: Nomenclature.

McGee.

51 *Amerind—a Designation for the Aboriginal Tribes of the American Hemisphere.*
Communicated by Prof. W. J. McGee, President of the Anthropological Society of Washington.

A part of the proceedings of the Anthropological Society of Washington, at a meeting on May 23rd, 1899, seem destined to produce permanent influence on ethnologic nomenclature, this part of the proceedings taking the form of a symposium on the name of the native American tribes. The discussion was opened by Colonel F. F. Hilder, of the Bureau of American Ethnology, with a critical account of the origin of the misnomer "Indian," applied by Columbus to the American aborigines; he was followed by Major J. W. Powell, who advocated the substitution of the name *Amerind*, recently suggested in a conference with lexicographers. A communication by Dr. O. T. Mason followed, in which the various schemes of ethnologic classification and nomenclature were summarised and discussed. Contributions to the symposium were made also by Dr. Albert S. Gatschet, Dr. Thomas Wilson, and Miss Alice C. Fletcher. At the close of the discussion the contributions were summarised by President McGee as follows:—

1. There is no satisfactory denotive term in use to designate the native American tribes. Most biologists and many ethnologists employ the term "American"; but this term is inappropriate, in that it connotes, and is commonly used for, the present predominantly Caucasian population. The term "Indian" is used in popular speech and writing, and to a slight extent in ethnologic literature; but it is seriously objectionable in that it perpetuates an error, and for the further reason that it connotes, and so confuses, distinct peoples. Various descriptive or connotive terms are also in use, such as "North American savages," "Red Men," etc.; but these designations are often misleading, and never adapted to convenient employment in a denotive way.

2. In most cases the classifications on which current nomenclature are based, and many terms depending on them for definition, are obsolete; and the retention of the unsuitable nomenclature of the past tends to perpetuate misleading classifications.

3. While the name "Indian" is firmly fixed in American literature and speech, and must long retain its current meaning (at least as a synonym), the need of scientific students for a definite designation is such that any suitable term acceptable to ethnologists may be expected to come into use with considerable rapidity. In this, as in other respects, the body of working specialists form the court of last appeal; and it cannot be doubted that their decision will eventually be adopted by thinkers along other lines.

4. As the most active students of the native American tribes, it would seem to be incumbent on American ethnologists to propose a general designation for these tribes.

5. In view of these and other considerations, the name *Amerind* is commended to the consideration of American and foreign students of tribes and peoples. The term

is an arbitrary compound of the leading syllables of the frequently used phrase "American Indian"; it thus carries a connotive or associative element which will serve explicative and mnemonic function in early use, yet must tend to disappear as the name becomes denotive through habitual use.

6. The proposed term carries no implication of classific relation, raises no mooted question concerning the origin or distribution of races, and perpetuates no obsolete idea; so far as the facts and theories of ethnology are concerned, it is purely denotive.

7. The proposed term is sufficiently brief and euphonious for all practical purposes, not only in the English but in the prevailing languages of continental Europe; and it may readily be pluralised in these languages, in accordance with their respective rules, without losing its distinctive sematic character. Moreover, it lends itself readily to adjectival termination in two forms (a desideratum in widely used ethnologic terms, as experience has shown), viz., *Amerindian* and *Amerindic*, and is susceptible, also, of adverbial termination, while it can readily be used in the requisite actional form, *Amerindise*, or in relational forms, such as *post-Amerindian*, etc., the affixes being, of course, modifiable according to the rules of the different languages in which the term may be used.

8. The term is proposed as a designation for all of the aboriginal tribes of the American continent and adjacent islands, including the Eskimo.

The working ethnologists in the Anthropological Society of Washington were practically unanimous in approving the term for tentative adoption, and for commendation to fellow students in this and other countries.

The proposed designation is also approved by the officers of the Bureau of American Ethnology, as well as by the officers and members of the Anthropological Society of Washington.

America: Arts of Life.

Mason.

Aboriginal American Zoötechny. By Otis T. Mason. From the *American Anthropologist* (N.S.), I, 1899. 8vo. pp. 81. Presented by the Author. **52**

"Zoötechny" includes "all industries associated with the animal kingdom," and the subject of this paper, therefore, "every phase of Indian life growing out of the connection between man and the beasts of the Western Hemisphere in pre-Columbian times." These have of course been greatly affected by manifold intrusions from the Eastern Hemisphere; but the author finds it possible to formulate eighteen Zoötechnic provinces, corresponding with the eighteen environmental areas of America suggested by Merriam in the Smithsonian Report for 1895.

Zoötechny may be conveniently divided into the following "chapters." I. Ethnozoology, or the study of the fauna of each region in its relation with the human population, for "in one form or another the entire fauna of each region directly or indirectly enters into the life and thought of its people."

II. Exploitive Zoötechny, or the activities associated with the capture and domestication of animals (which Professor Mason classifies in elaborate detail).

III. Elaborative Zoötechny, embracing all the activities included in the disposal of animals after they are in hand, whether as food (raw or preserved), clothing or material for implements.

IV. The ultimate products of Zoötechny and their relation to human happiness, for every part of every animal that enters into savage industry is invoked to supply, not only the needs, but the artificial wants of the savage.

V. Social organisations and co-operations; for according to Professor Mason "Society was organised among the aborigines of America on the basis of the

animals. . . . Scarcely an industry relating to the treatment of animals was based on individual action. Men were fowling, fishing, and hunting together. Much of the apparatus could not be managed by any individual."

VI. The progress of knowledge in Zoötechny, including the growth of language. "It is astonishing to find what a large vocabulary exists," in each case, "for the different forms of animal life, and different parts of the animal's body." . . . "Half the words of any primitive language are derived from man's association with beast-kind." Moreover, "the inventive faculty, which after all is the differentiating element between man and the brute, has been stimulated in the devising of property, means of capture, and tools for handling animal substances."

VIII. Religion: because, "in lower forms of religion and mythology, zoötheistic conceptions are prominent. Every creature is somebody. The animal world lies very near to human actions. Detailed consideration of this heading is postponed, but Professor Mason illustrates his thesis by a table showing the comparative number of clans or *gentes*, and of "animal totems," among a number of native American tribes.

The paper is full of suggestive hints for the collection of material, and for the classification and arrangement of many kinds of ethnological specimens which accumulate at present in store-rooms and basements of museums.

The Plates which accompany it illustrate;—I, *Leisters*, combination structures for grasping, piercing, and retrieving, from Alaska, *U.S. Nat. Mus.*, 23,518, 29,864, 49,051; II, (a) Harpoon head for retrieving showing toggle and barb types in one, *U.S.N.M.*, 89,379; (b) Fishgig; shank, body and flakes of bone, *U.S.N.M.*, 30,379; (c) Fishhook from the Naskapi Indians of Labrador, *U.S.N.M.*, 89,977; (d) Throwing sticks and stunning darts from Xinger River, South America (after von den Steinen); (e) Bird-dart (for piercing and entangling), and throwing-board, of the Greenland Eskimo, *U.S.N.M.*, 168,974; (f) Modern *atlath*, or throwing-stick, from Lake Patzcuaro, Mexico, *U.S.N.M.*, 153,020; (g) Hide-scraper with blade of glass and grip of wood, from the Tehuelche Indians of Patagonia, *U.S.N.M.*, 178,403. III. Barbed harpoon (when the animal is struck the barb is detached, and the shaft is made to float vertically by the martingale and bladder), *U.S.N.M.*, 11,362. IV. Toggle harpoon and line from Cumberland Gulf, *U.S.N.M.*, 19,519 (detailed drawings of the essential parts).

J. L. M.

Ontario: Religion.

Boyle.

53 *The Paganism of the Civilised Iroquois of Ontario.* Communicated by David Boyle, Curator of the Museum of Toronto, to the Anthropological Section of the British Association for the Advancement of Science, Bradford, September 10th, 1900. [To be printed in full in this *Journal*, vol. xxx.]

Notwithstanding the contact of the Iroquois or Six Nation Indians with white people for more than three hundred years, a very considerable number of the former have retained many of their old-time beliefs with the forms and ceremonies appertaining thereto.

Of four thousand Caniengas (Mohawks), Senecas, Cayugas, Onondagas, Oneidas, and Tuscaroras now residing in the Grand Reserve, within sixty miles of Toronto, Ontario, fully one-fourth continue to observe the ancient feasts or dances connected with the growth and ingathering of corn and fruits, and for desired changes in weather as well as for the cure of disease.

Some modification in the ceremonies was made about a century ago by an Onondaga named *Ska-ne-o-dy-o*, who announced himself as a prophet who had paid a visit to the abode of the Great Spirit. The changes introduced by him, however,

have not by any means removed the pagan character of the native beliefs, although he certainly did attempt to imitate some Christian observances. Still the addresses of the medicine men retain most of the old-time forms, although their significance in many cases is lost, and even the meaning of numerous words is no longer known.

The leading idea in the present form of worship is that of a Great Spirit; but this has been acquired from missionary sources, and although the Indians have adopted the idea of a heaven, they do not believe in any hell.

The quoted examples of petitions addressed to *Rawen Niyoh*, the Creator, illustrate the lack of assimilation of the old and new forms.

One of the most characteristic ceremonies connected with the Iroquois paganism is that of the sacrifice or burning of the *White Dog* at the New Year Feast during the February moon, when the spirit of the dog, accompanied by offerings of tobacco, conveys to *Niyoh* information respecting the condition of his "own people" on the Grand River Reserve.

North America: Tau-Shield.

Dalton.

Note on a Copper Shield from the N.W. Coast of America. Communicated by

O. M. Dalton.

54

This shield, made of beaten copper, was originally obtained by the Hudson's Bay Company's Agents at Port Simpson from a member of the Stickeen Tribe: the crest painted on the front is that of the grizzly bear. The copper was stated by the chief *Negh-Hum-gee-ase* to have been found on an island in Alaska by Sitka Indians. The shield has been in possession of several tribes, and is of considerable antiquity. Imitations of such shields, often called *tan-shields* from the raised T-figure on the lower part, were made by the Hudson's Bay Company for sale to the Indians, but these spurious examples are much lighter than that here figured, which has recently been acquired by the British Museum.

The bronze ground of the totemic design was temporarily covered with whiting in order to secure a sufficient degree of contrast for the photograph.



Canada.

Ethnographic Survey Committee.

Report of the Canadian Ethnographic Survey Committee. Presented to the British Association for the Advancement of Science at Bradford, September 10th, 1900. To be published in full in the forthcoming *Proceedings* of the Association.

55

The work of the past year has furnished conspicuous evidence of the great importance of securing ethnological data with as little delay as possible. While this is eminently true with respect to the white population, which is experiencing new and marked changes almost every year, in consequence of the introduction of foreign elements, often in large numbers, it is more particularly true with respect to the native Indian population. In many localities the original blood has become so diluted by intermarriage with whites that it is often a matter of great difficulty to find an Indian of pure blood. Proximity to settlements of white people has resulted in a more or less profound impress upon the social life and tribal customs, which are fast

becoming obsolete and forgotten. The old chiefs who have served as the repositories of traditional knowledge are rapidly passing away, and with their death there disappears the last possibility of securing reliable data of the greatest value. Conspicuous instances of this kind have been brought to notice during the past year, especially in the case of the British Columbia Indians, whose ethnology is of the greatest interest and importance in consequence of their possible connection with the people of Eastern Asia. At present the great difficulty of securing competent and willing investigators is one of the most serious obstacles to be contended with, and it is believed that the often considerable expense involved in the prosecution of such work is largely accountable for this condition of affairs.

It is gratifying to note that the Department of Education for Ontario has taken a very practical and active interest in ethnological studies in that province, and that it provides for the publication of the results of research in its annual reports. Evidence has latterly been accumulating to indicate the presence at one time of numerous aboriginal settlements in localities which were very sparsely inhabited when first visited by the white explorers.

In Appendix I Mr. B. Sulte continues his study of the early French settlers in Canada, covering the period from 1632-66. He traces the origin of these immigrants from different parts of France, and it thus becomes possible to establish with great accuracy the relative importance of the various stocks from which the present large French population of Canada is derived. These studies will form an important basis for more detailed studies respecting the effect of environment upon succeeding generations.

The ancient settlement of Huron Indians at Lorette, near Quebec, has always been an object of great interest to the ethnologist, although prolonged and intimate contact with the whites of the neighbourhood has resulted in marked alterations of a physical and social character. These alterations have progressed so far as to make trustworthy studies an exceptionally difficult matter, but the Committee felt that no opportunity to secure such data as might yet be available should be lost, and in Appendix II Mr. L. Gerin presents the results of a very careful investigation into the actual social condition of these Indians. He brings this into comparison with their original condition, tracing out the influences which have produced great changes among them during their prolonged residence in the province of Quebec, and subsequent to the abandonment of their old home. The condition of this community of Hurons offers a marked contrast to that of the originally similar Iroquois community near Montreal, their evolution in modern times having been almost in opposite directions, a circumstance explained by their environment in the two cases. The report is accompanied by photographs showing the present conditions of village life, which will be kept on file for future reference.

In Appendix III Mr. Hill-Tout follows up his very careful study of the N'tlaka'pamuq, appended to last year's report, with a similar careful investigation of another and markedly different division of the Salish stock in British Columbia, the Sk'gō'mic. These people in large numbers previously inhabited Howe Sound and Burrard Inlet, but they are now much reduced, and appear to be rapidly passing away. Over ninety villages at one time inhabited are enumerated. Much attention has been given to the language, which had not heretofore been seriously investigated, and which shows numerous grammatical and other peculiarities. Mr. Hill-Tout's work, in fact, constitutes a very important local contribution to the ethnology of the native races of the west coast.

This report is accompanied by nineteen photographs of Indians, taken by Mr. Hill-Tout, partly of the Sk'gō'mic and partly of neighbouring tribes, in which he is now further pursuing his investigations.

Alaska: Property Marks.

Boas.

Property Marks of Alaskan Eskimo. By F. Boas. From the *American Anthropologist*, N.S. I, 1899, pp. 601-13. 8vo. Presented by the Author.

56

Dr. Boas has followed up a clue first given in Lubbock's *Prehistoric Times* (1869), p. 10, and elaborated in R. Andr  e's *Ethnographische Parallelen und Vergleiche*, N.F., p. 84, as to the significance of the distinctive marks which are frequently marked on the weapons of the Eskimo tribes of Alaska. As these marks are almost confined to the hunting spears and other weapons of the chase, and do not seem to occur on ordinary tools, it is inferred that their object is "to secure property right in the animal in which the weapon bearing the mark is found." The frequency with which some such marks are found suggests that they are probably communal rather than individual.

The paper is illustrated by drawings of a number of these marks, on whale harpoons, walrus harpoons, and deer-spears from various localities, all (except a few from the Peabody Museum) being in the collection of the U.S. National Museum.

J. L. M.

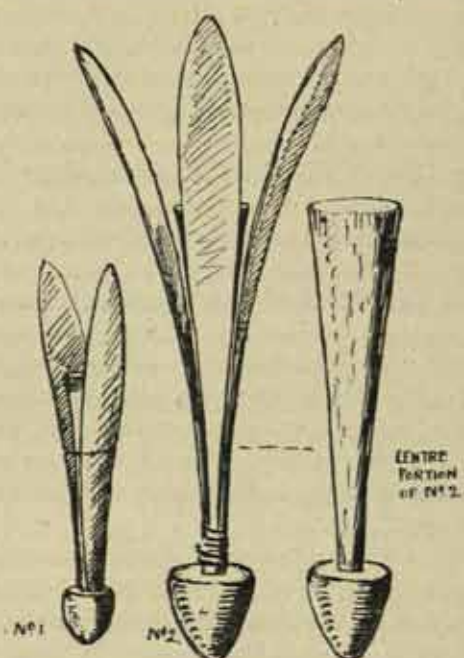
Vancouver: Salmon Floats.

Edge-Partington.

Floats for Alluring Salmon, from the North End of Vancouver Island. Communicated by J. Edge-Partington.

57

In going through some old lists in the British Museum, I came upon a description of the so-called "floats" from the north-west coast of America, from which I have made the following extract:—"Wooden contrivance used for attracting fish. It is only used by some few tribes at the north end of Vancouver Island. It is used in the following manner; when in deep water the float is loosely fastened to the end of a long spear from 40 to 70 feet in length, it is then carefully shoved down through the water from the side of the canoe as deep as the spear or pole can go; an Indian with another spear sits waiting in the stern of the canoe intently watching the spot where the float is; the float is then jerked off from the end of the pole, and as it wriggles up through the water has much the appearance of a spinning bait; a salmon dashes at it, and is at once transfixed by the spearsman; very large salmon are by this ingenious contrivance taken in deep water."



SALMON FLOATS FROM VANCOUVER
ISLAND.

BRITISH MUSEUM, $\frac{1}{4}$ SCALE.

The floats are of pine wood cut from the solid, with the exception of the wings, which are of a pale hard wood. These are either inserted into the knob at the base and tied about half way up as in No. 1, or lashed on with strips of cedar bark, as in No. 2. In the latter specimen it is possible that there were originally four wings.

Nootka Sound.

Strange.

58 *Extracts from the Diary of Mr. James Strange, H.E.I.C.S., commanding an Expedition sent by the East India Company to the North-West Coast of America in 1786; with a Vocabulary of the Language of Nutka Sound. Communicated by Coutts Trotter, Esq., M.A.I.*

The notes and vocabularies which follow were collected at Nootka Sound and Prince William's Sound in 1786, by Mr. James Strange of the Honourable East India Company's Service, who conducted an expedition from India to the coast, combining trade and exploration. From a study of the narrative of Captain Cook's voyage to the North Pacific seven years previously, Mr. Strange was impressed with the belief that a profitable trade in furs might be established with the natives, and he urged the Court of Directors to establish a factory on the coast as its headquarters. The plan, however, for various reasons, was not carried out.

The expedition in question is briefly noticed in Portlock and Dixon, *Voyage round the World, but more particularly to the North-West Coast of America, performed in 1785-8*, in the following terms:—"In this year (1786), the merchants of Bombay sent two vessels under the direction of James Strange." His diary and vocabulary do not appear to have been in any way published. They were preserved in his family, and are now in the possession of his grandson, Mr. Coutts Trotter, by whom they have been brought before the Anthropological Institute. Circumstances prevented Mr. Strange from seeing much of the natives in their homes; but he mentions a few matters of anthropological interest, and the extracts which follow seem worthy of publication in the *Journal*.

"From my first interview with these people I had determined never to suffer any of them to come on board ship, and during my stay at Nootka, I always adhered to this determination, except in favour of two or three of the chiefs, to whom I wished to show some marks of respect and distinction, and who were accordingly received on board on several occasions; but as for the common people, not one of them ever went up the ship's side. In establishing this custom I am certain I thereby avoided frequent cause of quarrelling with the natives, which their unconquerable dispositions to theft would no doubt have occasioned."

"I went directly to the village, and was received, by all ranks and descriptions, in the most friendly and courteous manner possible, nor could I pass a house without being invited into it in very pressing terms."

"Words can scarcely convey to the mind of the reader an adequate idea of the beastly filth in which the natives of this part of the world pass their lives; I declare that before I was an eye-witness to it, I had a very imperfect conception of the extent of it. It was impossible to move a single step without being up to the ankles in mud, fish-guts, and maggots, and this inconvenience was alike felt within and without doors."

"The persons and habitations of the people in general of this Sound have been so accurately and faithfully described by Captain Cook, that anything I could here say on the subject would be mere repetition. Travellers are generally suspected (not always indeed without cause) of indulging fanciful exaggerations of the wonders they have seen. For my own part, I confess that if a name less established for its respectability than Captain Cook's had been prefixed to his book, I should have doubted that in describing these people the account given had been somewhat highly finished. It is, however, a tribute due to the memory of that great man to declare that he has not, in any instance that has come within my observation, ever exceeded in his descriptions that strict adherence to truth which every

historian in his communications to the world should invariably prescribe to himself."

"I now made known to the natives the object of my present visit to the village, which was to purchase a house for the reception of the sick. No sooner were my wants explained, than I had the offer of any house that I chose. I accordingly purchased one, for about the value of a shilling, which was partly constructed of six logs of wood, each of which were sufficient in thickness and length to have made a mainmast for the largest seventy-four gun ship in the British Navy; besides these, there were several smaller spars, and a considerable number of pine planks."

"In addition to the musket and pistols, a red coat and cap was at the same time solicited in strong terms, in order to complete Mr. Mackay's warlike appearance. On enquiring why a red coat was chosen in preference to any other, I was informed that that was the colour the appearance of which would most intimidate the enemy. It is probably with this view they so frequently rub their bodies over with red ochre, and which I observed was invariably practised by such of the strangers as visited us, and who lived at any distance from the Sound."

"It appeared evident to them that in regard to their government, the idea suggested by Captain Cook, that each family was internally governed by its own chief, was perfectly consistent with their observations on the subject. During our stay here, we had frequently occasion to complain to the different chiefs, of thefts committed by their dependants, and as often as the culprit was detected we were sure to have the stolen goods returned, and to see punishment inflicted on the aggressor; although at the same time we had reason to believe that the act itself was committed with the connivance, and perhaps at the special command of the judge himself. Although the chief, under whose protection I placed Mr. Mackay, was apparently the wealthiest in the Sound in respect to riches, and to the number of his dependants, yet he did not on this account seem to derive any additional personal honour or respect from the community at large."

"With regard to religion, their ideas appear to be very circumscribed indeed. They hold in great respect however, one of their gods, whom they call Enekitsum (the god of snow), and to whom they pray to defend them from a long continuance of frost and snow. In my first visit to Maquilla, I had occasion to become intimately acquainted with this god. On entering the chief's house, after the forms of introduction were duly observed (for I was regularly presented by name to his lady and family), my notice was particularly attracted by the appearance of a very pretty canopy, fancifully and not inelegantly decorated with bits of fur of various sorts, and from which hung a curtain richer than any I had hitherto seen; being composed of four very beautiful sea otter skins; behind this was placed on a sort of pedestal the god Enekitsum, and on each side of him was a lamp burning. On my advancing to that part of the habitation where the figure was placed, I observed a kind of suspension and doubt in the minds of all present, whether or not I should be permitted to proceed: no one, however, offering to check my curiosity, I advanced, and examined the figure and its appendages which I had determined should not long continue in their present abode. Maquilla now joined me, and of him I enquired the name and qualities of this god, which he very willingly informed me of. I now expressed a wish to know in what manner they worshipped Enekitsum, on which Maquilla most readily agreed to satisfy my curiosity. To this end therefore an additional quantity of wood was added to a fire already considerably large, and all external air was as effectually excluded as was in their power to do, by stopping

¹ The young surgeon who volunteered to be left on shore with the natives.

every crevice they could conveniently reach. When this business was over, they all seated themselves round the fire to the number of about a hundred persons, and began a song by no means unmusical, in honour of Enekitsum, I suppose, whose name they frequently repeated with strong emphasis. After singing a considerable time, they began a dance in which Maquilla, and some of his principal people joined, having first besmeared their faces with red ochre, and put on their war jackets. The music which accompanied this dance was both vocal and instrumental; the latter consisted simply of a wooden mallet which was struck with considerable violence, (keeping time) against a three-inch plank, from which appended innumerable muscle and cockle shells, and the louder the performer thumped, the more his abilities were commended. In this dance they imitated the voice and action of a bear, the wolf and various other animals. After dancing a considerable time, in which they were perfectly overcome with fatigue, they again seated themselves in a half circle, round the fire, and a most profound silence ensued; after a short pause Maquilla, accompanied by two old men, proceeded with solemn face towards the god Enekitsum, whom they most respectfully took and placed before the fire. A large shell was now presented to Maquilla filled with oil, which he sprinkled on the fire; this naturally occasioned a considerable smoke, which was suffered to get vent by means of removing two or three planks in the ceiling of the building immediately perpendicular over the fire, and from this aperture was scattered (by a person placed there for the purpose) several handfuls of the finest down, which was intended to represent a fall of snow, and which indeed it did. The smoke, aided by the action of the fire, naturally resisted the fall of this light body, which together with itself escaped at the opening from above. Enekitsum was now re-conducted to his station, with the same ceremony and respect as was before observed. Mutual congratulations now took place, on occasion of the happy issue of their ceremonies and a splendid repast at the command of the chief was served to every one present, which consisted of the pine bark, and fish roe mixed, and a dried salmon to each individual. This fish we observed was reserved for occasions only of great festivity, and though apparently in great abundance in every hut in the village, yet it was with much reluctance that they were prevailed on to sell one of them, and a sea otter skin was not purchased at a dearer rate than a salmon."

"Notwithstanding all this parade of devotion paid to Enekitsum, as just now mentioned yet he became my property the next day, together with his curtain, on which, as I before observed, I had set my heart!"

"Amongst various other remarks made by Captain Cook respecting these people, he particularly mentions their extreme fondness for music. In the course of my commercial dealing with them, I had a stronger proof of their genius, and the retentive powers of their memory in this respect, than can well be imagined."

"In one of my lucky days I was visited by several very large canoes, filled with strangers, who from the style of their dress, and from the numbers of their attendants, appeared to be men of a superior class to the generality of those who were resident in the village. Having displayed before them a variety of goods, such as knives, chisels, axes, swords, etc., I was greatly astonished at the seeming indifference with which they were viewed by my visitors, and at the little disposition they showed to traffic for any of the articles I had thus exhibited; I was now busied thinking by what means I could strip my gentlemen of their finery (for each had on two or three fine skins) when it occurred to me to observe that their attention was seemingly called off by the singing of their attendants, and to which they kept time by beating two shells together with great precision."

"I now recollected that amongst the various articles which composed my investment there were a considerable number of cymbals, which I conceived would be no bad substitute for their shells, and would better chime in with their species of songs, which were more of the martial than tender kind. I accordingly produced a pair. The expression of rapture and delight which the first clash of them excited in the breasts of all present is not to be described. In displaying the effects of my music, I composed for the occasion a sort of ring-ting tune, which had the merit of drawing from my polite audience such bursts of applause as was sufficiently satisfactory to me that I did not sing in vain. My song was encored again and again, nor did I give over, whilst I was able to articulate. I should observe, that after I had da capo'd it half-a-dozen times I was joined in it by a great majority of all present. The consequence of this exhibition was that I stripped my gentlemen to the buff, in an hour's time, each contending with the other which should be first served; I got from some three, and from others four skins, for every pair of cymbals. My visitors now took their leave of me, and went to Maquilla's house, by whom they were all entertained. They spent the evening (as I was informed by such of the gentlemen as slept on shore) in high glee and harmony, dancing, singing and making good use of their cymbals all night long."

"I had next day a visit from several of the same party, who had still something left worthy my attention. Having selected three or four skins, I offered some articles of ironmongery for them, being desirous of reserving the remaining few pairs of cymbals I had left to some other future interesting occasion. My ironmongery was, however, utterly rejected by them. I then presented some articles of copper, which had hitherto been in great repute, but that in like manner was refused, and I was given to understand that cymbals alone were wanted. These I at length reluctantly gave, but before they were received a song was required of me. Accordingly I sang the first that came into my head; this was not relished, and, I may say, was hissed off the stage; I tried a second, a third, and a fourth, which all shared the same fate. Each man shaking his head, told me it was *clautra*, that is, *the other*, they wanted me to sing. I now perfectly understood what they meant, and that it was my yesterday's composition that was required of me. I therefore attempted to recall it to my memory, but if all these sea-otter skins in Nootka had been the price of it, I could not recollect a note of it. Nor was I much surprised at my failing in the attempt, considering it was the offspring of the moment, and that having answered my purpose, it was no less easily forgot than composed. The case was far different with many of my hearers, on whom it had made a more lasting impression, and some of them seeing (I verily believe) my embarrassment, struck up my song, and that with such precision as to time and tune, as infinitely astonished me. I now readily chimed in with them, and continued singing whilst there was anything left to sing for. It was matter of surprise to me as well as to everyone, to observe how soon my song became fashionable, and how quickly it was learned by all ranks whatsoever. In short there was not a boy or girl in the village who did not, in the course of three days, sing it as correctly as I could. I seldom, after this, bought a skin without being first called upon to sing ring-ting, etc., and which I am confident I shall never again forget."

"The practice of bringing hands and heads for sale obtained now in like manner as when Captain Cook was here."

"In my second visit to the shore, I had the pleasure (or more properly speaking the dissatisfaction) to ascertain for a fact (and which when Captain Cook visited Nootka remained a matter of doubt in his mind), that the savage and barbarous

practice of devouring human flesh exists here as well as in the Sandwich Islands. In the course of this day's excursion, I was accosted by one of the most celebrated warriors in the Sound named Clamata, who had been previously introduced to me by Maquilla, as a man famous for his bravery and address in war, having personally slain eight and twenty of the enemy within the last ten moons. Having beckoned me aside to the most retired part of the walk, he took from under his garment, a basket, from whence he drew three hands and a head, which he desired me to buy. I conceived this to be a very favourable occasion to learn with certainty what were the purposes for which these people thus preserved the hands and heads they so frequently presented to us for sale, though at the same time I had no doubt, in my own mind, but that they were applied to the very purposes which I shall now relate."

"To this end I represented to Clamata, that I was ignorant what use I should make of them, if I purchased them. On which he informed me that they were good to eat! I seemed to discredit the assertion, with a view to urge him to the commission of that act, which on any other occasion than the present, I should have shunned the sight of with abhorrence. My hero now gave me ocular demonstration and very composedly put one of the hands in his mouth, and stripping it through his teeth, tore off a considerable piece of the flesh, which he immediately devoured with much apparent relish. However prepared I was for this exhibition, yet I could not help expressing horror and detestation at the act. He immediately comprehended my meaning, and endeavoured to reconcile me to the deed, by assuring me, that if I died, or if my friend, or his friend died, he would not eat us; but that the hand he had then eaten, was the hand of his enemy whom he had killed in war, and that the eating of it was a deed acceptable in the eyes of heaven; to which he at the same time pointed. He now pressed me to buy them, which I positively refused doing, and indeed on every occasion I strongly discountenanced the purchase of them, lest it might become an inducement to these savages to go purposely to war, in hopes of being able to dispose to advantage of the miserable remains of their conquered foes."

"This kind of traffic was always carried on with seeming secrecy, and an apparent fear of being detected by their own countrymen; and they therefore watched the occasion of parting with their goods at a time when their companions were otherwise busied; from hence I should infer that the practice was either considered among themselves as dishonourable, or (which is by no means improbable) that this secrecy was only assumed with a view thereby to enhance in our eyes the value of their goods; for I should observe that they were never purchased but at a most exorbitant rate."

"I considered it therefore high time that we should now take leave of our Nootka friends; which I did with the pleasing reflection, that in all my intercourse with them, I had never been under the necessity of recurring to violent measures in any one instance. This was more owing to the precaution I took to prevent mischief, than to any good disposition in them not to attempt the commission of theft, which they were always ready to do, whenever an opportunity offered."

"At daybreak the next morning¹ we were visited by a canoe in which were four men. They immediately came alongside of us, and began a kind of song or harangue, in the same style as those of Nootka; and were in the like manner painted and studded with feathers. In my invitations to them to come on board I made use

¹ Just after passing the Scott Islands, so named by Strange after the chief promoter of the expedition, a little north of the north end of Vancouver Island.

of all my knowledge of the Nootka language, three or four words only of which they understood. They brought with them two sea-otter skins, which though both old and ragged, I judged proper nevertheless to purchase, rewarding them at the same time most liberally for them. The extravagance of their joy on viewing the iron I gave them was little short of madness! They appeared to be totally destitute of any European articles whatever. It was, however, evident they knew the value of the commodity I gave them, otherwise they would not have expressed the satisfaction they did on receiving it."

"Compared with our Nootka friends, these¹ appeared little versed in the art of traffic, and never hesitated a moment accepting any offer that was made to them. They as readily concluded the bargain for one bead, as they would have done for twenty. Colour alone constituted the value of the offer, and none other than sky blue would have been received although the number offered had been ten times multiplied."

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 "I conceive there are stated periods at which alone the natives of this coast inhabit the sea-shore, and which at that time they are compelled to do, in order to procure their winter stock of fish; which when once obtained, they return to their usual places of abode, which I doubt not are considerably inland. I am the more inclined to this belief, from my experience of what happened during my stay in Nootka. Even so early as our first arrival there, the inhabitants of Friendly Harbour Village were already beginning to remove, and on landing we accordingly found many of their habitations deserted. They were, however, soon occupied again by their former possessors in consequence of our arrival. On our first coming here, we computed the number of inhabitants residing in this village to amount to about five hundred persons, yet long before we took our departure that number was reduced to about one hundred. So soon as each family had disposed of their skins, and other articles of trade, they immediately began removing their effects which they secured on rafts, made of the planks and smaller timber which composed their habitations, and these, according to their bulk, were lashed to four or six canoes—each person had his particular winter stock of fish, which were packed up in bales, and well secured with mats."

"From our daily intercourse with the people of Nootka, we had acquired so much of their language before we left the Sound, as to be enabled to comprehend almost everything they said to us, and likewise to make ourselves understood by them. I was particular in my enquiries why they quitted their present habitation, and where they went to. In answer to these questions I was informed that they were going far far off, and that the sun would sleep five times before they arrived there—that having now got plenty of fish, they were going to hunt and kill bears, deer, and sea otters."

"So short was our stay and so momentary was our intercourse with the inhabitants of this (Prince William's) Sound, that little or nothing can be said of them in addition to what is already made public in Captain Cook's account of them. In as far as my observation enables me to form a judgment of their dispositions and manners, it inclined me to consider those of them I saw very differently from what they appeared to be in their transactions on board the *Resolution* and *Discovery*; from a perusal of which it is natural to conclude them a bold, enterprising race. In their intercourse with us they appeared to be in every respect the reverse of this; being timid and shy of us to a great degree. It was no uncommon thing for me to traffic with such as visited the ship for the first time, through the medium of a second

¹ At Prince William's Sound, 11° further north (60°30' N.). They had hardly any furs.

person, who acted as agent, the stranger in the meantime keeping at a considerable distance from the ships. This I found to be more particularly the case where the party had the appearance of being a man of distinction. After two or three visits to the ships some of them, however, got so far the better of this mistrust of us, as to venture alongside, but never did they so entirely shake it off, as to accept at any time the repeated invitations I gave some of the better sort of them to come on board. I found them universally less skilled in the art of trafficking than our friends at Nootka, who were as thoroughly versed in all the little frauds usually practised to allure and deceive, as if they had the experience of a century's intercourse with us."

"In the last excursion which our long boat made to the northward of the Sound, our people, at a distance of 30 or 40 miles, met with two deserted villages, which contained from ten to twelve houses each. These they found to be not only infinitely better constructed so as to exclude the inclemency of the climate, but also much more neatly finished than those at Nootka. The inhabitants of this Sound (to judge from what we saw of them) appear to be a much more ingenious race than those to the southward, excelling them greatly in works of art, not only in respect to execution, but in point of variety. In the article of dress they appear to be well provided, having very comfortable garments of fur and likewise a most excellent substitute for our thickest and warmest bath rugs. I used my endeavours to procure a piece of this cloth without, however, succeeding, although the price I offered for it was equal to what would have purchased half a dozen good skins; it is probable, therefore, that this manufacture is scarce and in the possession only of their principal men. I procured a skin of the animal of which it is made, which has more the appearance of a sheep skin than that of any other animal I know. They are likewise well provided in the article of boots and gloves, and their oil skin dresses are most admirably calculated to keep them dry in rainy weather."

The vocabularies which follow are, as Mr. Strange says, supplementary to the list of words given in Captain Cook's narrative, only some two dozen words being common to both. Mr. Strange's list is four times as numerous as the other, and includes the numerals.

ADDITIONS TO CAPTAIN COOK'S VOCABULARY OF THE NOOTKA SOUND LANGUAGE.

Compiled by Mr. James Strange, Commander of an Exploring Expedition, 1785-6.

Nootka.	English.	Nootka.	English.
Quaesmubt	Peas.	Nonook	Singing.
Klatlasstookkeass	Tansy.	Mowa, or Mowa-ash	15 They are going.
Klehtsweebt	A species of dandelion.	Toohsheetl	To leap.
Mamok	Weaving or knitting.	Eatsook	To walk.
Sootsinneck	5 Washing.	Kamutkook	Running.
Sootsinneck haweelkh	To wash for a friend, or to make clean for the sake of a friend.	Aakussha	Marching, or walking with a measured pace.
Toomeess	A cinder.	Oopkatihklimmah	20 A club or tail of hari.
Chakhéchaha	Chiseling.	Mookmookqua	Cutting with an instrument resembling a chisel.
Soohtsoohwa	To hammer; beating with a wooden hammer.	Klamanoolkh	To climb; up a tree.
Chacak	10 A chisel.	Seeatla	A sister.
Tooshquo	A green cod.	Seeak	Me, or mine, belonging to me.
Kawunnah	A sole or flounder.	Chookqwakutsaponeek	Enter; an invitation to go into a house.
Klebecaunin, or Klehy-anime.	A net for catching birds.	Satewa	25 A pine top.

Nootka.	English.	Nootka.	English.
Tusshee	A road, or path.	Chapats	A ship, or a canoe.
Katskamen	A red butterfly.	Seepooss	The keel of a canoe.
Souwak baweeekh	Intimate friends; literally one friend.	Klawhitseem 80	The carvings on a canoe.
Sooquess 30	Go bring; fetch.	Sapum	The cross sticks of a canoe.
Synoca	Sea-ears.	Anuklimma	The bottom of a canoe.
Sheesha	The beard of a mussel.	Coopkanimma	The bow of a canoe.
Kakeesnubt	A kind of small ground cane.	Ahapukht	A species of sea-weed.
Matsquinnah	Any kind of fly.	Konee-emmitz 85	Chickweed [but cf. 215.]
Ko-ooshinné 35	The croaking of a crow.	Klatlasstoopkyeass	The earth nut.
Wasuksheetl	Coughing.	Ayakhtl	Trembling with fear.
Tahmeess	Spitting.	Aeekkh	An eagle's feather.
Antomeess	Spittle.	Awatinné	An eagle.
Enixsheetl	Blowing the nose.	Achimma 90	Lines, or figures painted on the face.
Chootquaheekak 40	An instrument for killing fish.	Cheechetl	Tattooing.
Choochat Sooma	To kill, or catch fish, with this instrument.	Tahok	Signifies fear, or a person very much afraid.
Ass	Large, grand, a great many.	Tahok Moquilla kah-sheetl.	Moquilla is afraid of death, or of being killed.
Paquinneeé	A skate.	Se-essook	A small fishing line.
Eatcha	A dog-fish.	Chihkimmé 95	A fishing hook, dressed something like our fly hooks.
Kyehin 45	A louse.	Tästuklemma	A bladder used in fishing.
Kshtseap	Turpentine, resin or gum.	Sooma	A name for fish in general.
Kloobkoomah	A bird's bill.	Keeteelook	An upper garment.
Wacheechee	A bird's feet.	Chepulkhmeess	Fish scales.
Neekak	A bird's claws.	Klootsamma, Tootsma, or Tlootsma. 100	A woman.
Kihleophusspatoo 50	A bird's wings.	Haqualoess	A girl.
Komitz	A bird's head.	Hychinna	A kind of cockle, or clam.
Nachoo	The tail feathers of a bird.	Kleethak	The breast and belly of a man.
Keyssmeess	Blood.	Habytah	The fern root.
Aké	A wound.	Touqua 105	A well.
Mutsheetl 55	To tie.	Aook	The lake.
Okkqueetl	Flying.	Euhquat, or Euhquot	A village.
Hotyah	A sword or sabre.	Encetsheetl Euhquat	Return, come back to the village; an invitation.
Quahameess	Red ochre or paint.	Makhtimma	Bracelets made of plaited hair.
Quaquatlche-che-chee	Large chests, ornamented with sea-otters' teeth.	Kleeshklinnak 110	Boots.
Hyseca 60	Mine; it is mine.	Cheebheetl	To pull, or draw.
Emeex	Cakes of bears' grease.	Klehaksalip	Buried in the ground, or covered with earth.
Klipshimmahyatiz	Sweat.	Klyeoksheetl	To knock into the ground, as a stake, etc.
Kamuthaxe	Certain figures painted with red ochre.	Suhsheetl	To stick anything into the ground, also to stake.
Moquinnak	Sprats.	Tsoostsoosa 115	Digging.
Haook 65	Fit for eating, also an invitation to eat.	Quahatap	Breaking a stick.
Issenooa	Cranberries.	Paatleek	A flambeau.
Ougeeé, or Awah	The name of a poisonous root, with which they rub the points of their arrows.	Seeseemitz	Earth, the ground.
Ohweek	A quail.	Klinteemeess	Ashes.
Māak	Poison.	Tahteenookkh 120	A small folding knife.
Pohé 70	A halibut.	Klanooquxim	The handle of a knife.
Amoet	The backbone of a fish.	Taquinneek, or Soo	Grasping, or the hand folded.
Matlémah	Soot.	Sukhasheetl Weena	To kill, or shoot the strangers.
Tanass	A boy.	Aptasheetl	Theft, stealing.
Sooquolchee	Bring, run and bring.	Chooé 125	Play, do play.
Sooquolchee Quotluk;	Run and bring the sea otter's skin; run and bring the iron.		
Sooquolchee Seeké-maillé, 75			
Aycoopato	The bulb, or head of the large tangle.		
Qumma	The stem, or stem-post of a canoe.		

Nootka.	English.	Nootka.	English.
Hyea	Go out of the way, or to that side.	Elkhmupt 165	Nettles.
Pohtkleetl Tootsma ..	The women are running away from fear.	Kawatkamubt	Wild spinach.
Kooweelkh	Thieving, or hiding a thing after it is stolen.	Hou-ask or kilsoop	Herb John.
Neenaneech	Let me see it; examine it.	Po-opt	A kind of rock moss.
Chooquatlik 130	This way.	Pootspotsumpt	Mint.
Ko-osheetkamutt	Jessamine.	Silsque 170	A bird's excrement.
Sheetlok haoooa....	They are going away to a great distance.	Akamubt	Goose grass.
Klooshinnakak	A shot from a gun, or word they used to express their fears of a gun.	Koochuk	A particular kind of fish hook.
Sihseehwa	Scratching.	Puttayhmubt	A rose bush.
Koeecha 135	Smoke.	Kleightaweebt	A rose.
Kutsklya	Beating, or malleting with a stone.	Klooweekmubt 175	The plant with very bright red berries.
Oophyak	Flame.	Quoteekak or quoteeat....	Heavy; it is very heavy.
Kleetleka	Sparks of fire.	Tummakubt	The prickles of the rose bush.
Wehmupt	A wreath of a pine branch.	Mowā-āssh	Come away.
Cheechiskinneek 140	Children; young boys.	Poohsheetl	Blowing with the mouth.
Sooheekak	The bone point of a spear.	Wuhsheetl 180	Breaking wind.
Elkhhandimmé	The feathers of an arrow.	Ekho	This, these, or that.
Taeoop	A bow string.	Haoooa	A great way off, without defining any determinate distance.
Teecheetna	Sharpening any instrument.	Sitseeahmubt	The pear tree.
Klwhameess Nās 145	The sovereign of the sky, God Almighty.	Kakahmubt or kaska-nukmubt.	The elm.
Queheekak	A stone for polishing metals.	Shutlmubt 185	The fern.
Teekatsuk, or Teesh-cheetl mooxie.	Throwing a stone.	Aksetso	Red clover.
Kaweebt	The brambleberry, or bush.	Klatlamubt	A species of willow.
Keilkkintapah	The strawberry, or tree.	Sohasht	Salmon.
Wetsnah 150	A caterpillar.	Pillukh or Pinnukh	A stone hammer, or pestle.
Kakeesm	A species of grass.	Akhak Akhak 190	What have you got? or what do you want for what you have?
Mowitch or Kobatseek	A deer.	Sootuht....	A gimlet.
Kleethak	A bear's skin.	Eutsuss estrook....	Go away, go out: as out of the house; this is spoken in displeasure.
Cehemees	A bear.	Eyntecatah	Dancing.
Keeseeu 155	A long string of plaited grass, bound round the head like a turban.	Weekatish	Not any; I have nothing more.
Klyhappa	Red bream.	Okox 195	A conical cap, with various figured ornaments.
Oopmahsheetl	Pouring water, as out of one vessel into another.	Milse or Milsoon	A fishing spear with two prongs.
Aoupghk-ka	Whistling.	Sequreñ	The two prongs.
Noahksheetl	Swallowing.	Akeek	The bone barbs.
Mamattee 160	A crow.	Sooksoore	A plane, or the frame of one.
Mahinneb	A pole.	Mattilhsimma, or mattilksheetl. 200	To tie; binding.
Naok	Shall I come, or I will come.	Tamoksheetl	A knot.
Mocappammé	The name of an enclosure where they perform some religious ceremonies.	Klookass....	A loop.
Kowas [cf. 206]....	A little deformed figure of a human being in the Mocappammé, which we understood they worshipped.	Kleesilkh	Clean.
		Aecmahai	The flower none so pretty.
		Moweh 205	Look at it.
		Kowass or Koass [cf. 164]	The name of one of their divinities; this is also either the name for the nation, or for a number of people collected.

Nootka.	English.	Nootka.	English.
Enekkteem	The god of snow whom they worship and pay great veneration to.	Klemesheetl makyo kla-maht. 245	Warming water with red hot stones, which they lift by the wooden tongs.
Hanook Enekeetsem	This may either signify, take care of Enekeetsem, or Enekeetsem will take care of you.	Satsaweelkh	A carved wooden spear.
Enekeetsem haweelkh	An expression frequently used, and probably means that Enekeetsem protects their friends.	Echamoot	A bladder, or skin, in which they preserved their oil.
Eiss 210	Flax, or a substance resembling it.	Cheetapuxituma	A mat on which they sit and lounge.
Outsookhsails	Tears, weeping.	Esokotté	A pearl shell.
Tomilkh	Winking.	Oopeak 250	Trap baskets for catching fish.
Eenapuhseem	A large whale spear.	Haymma	A small wood dish, which they use on various occasions.
Sehuk-kusht	Smoked sardines.	Sootskeek	A stone chisel.
Konéemitz [cf. 85] 215	A species of seaweed.	Klaklaktimmé	The foot.
Kaoomen or kaoomené	A pigeon.	Chahitseeé	The knee.
Ohytzo or chahwoitz ..	A little square vessel for holding water.	Aptsootachree 255	The thick of the thigh.
Hamootémilkh	A large horn spoon.	Seelwea	The scab.
Akha or ekho Takna	His, this, that or my child (son).	Kloopullé or klupa	The sun's beams.
Hestoquattohqua 220	The name of a chief's wife.	Sutsaksteelkh	The setting of the sun.
Hunneekeea or hulleekes	A trough.	Opkustah	The rising of the sun.
Apkhesht	Dried fish of any kind.	Oopatto 260	Day.
Moquilla	The name of a young chief.	Athya, or Atsheetl	Night or darkness.
Nyahpatto	A cradle.	Wasish	Sleeping or snoring.
Klitsinnaka 225	Moquilla's brother's name.	Klemiksheetl	Awake.
Mihtook	One blind with age; a very old person.	Quelkhquatla	One half of the moon.
Makysnamma	A bow string.	Mikhlemeootl 265	The full moon.
Moksee, or mosksee	A stone hammer, also stones of any kind.	Tatooss	The stars.
Atshusee	A mallet.	Quoeatseek	A wolf.
Amet 230	A shell used for a spoon.	Enema	A woman's breasts.
Quespees	The woods.	Cheetléchea	Cutting with a knife.
Apseoop [cf. 294]	An armour for the head, made of hair and leather.	Zseetseeastikooma 270	The plaits of a woman's hair.
Chee-chee-chee-chee-quasatl.	Teeth, or bones; with which they ornament their chests.	Seeahy	It is mine.
Quotsitta	A chest.	Keeseek	A quill.
Enekeets 235	An enemy.	Aeatshi	The large feathers of a pigeon.
Takna Seekya	A female child, or daughter.	Meeteemelkh	The war dress.
Euwatl haweelk kloohsh	A friend's medicine, or medicine from a friend is good.	Kleesighkoo 275	The figures on this dress.
Teechattas	A wooden box for holding arrows.	Wakeéu, or Waksheetl	Making urine.
Humumma	A large snail shell.	Noocheu, or Noap-noolkh.	The sea.
Humumunnaksheetl 240	Drinking.	Seekootlash Zseehaté	Bring the arrows.
Cheemak	Carving on wood.	Hoquoluk	A chest.
Eksheetl ehque	Polishing with a shark's skin.	Quasighaak 280	The leather dress, ornamented with quills and hoofs.
Honeekkea kawutass	Eating fish out of a trough.	Zseehatté	A musket or an arrow.
Klamat	Wooden tongs.	Eenalksam	A spar.
		Qulkook	Planks.
		Hleesheenaee	A mantle made of a stuff resembling flannel.
		Mukeea 285	A fire stone, used in heating water.
		Kutsh-hak	Leather.
		Kookhkooha	Shaving.
		Kakhas	A spit.
		Keekshook	A small spar.
		Seapoot 290	A hat or cap.

Nootka.	English.	Nootka.	English.
Nahai	A present, also solicit- ing something out of friendship.	Taatté	A kind of hook with a fly.
Hetso	A wooden hammer.	Mattmah....	A fishing line.
Teenah	A stone for sharpening metals.	Kloomacetz 335	Sipping.
Apsroop or Quotimmé	The armour for the head. [cf. 232.]	Mamaseem	Leather bracelets.
Sooheéek 295	A dagger or large knife.	[Kapsak.]	The hair of the head.
Tahtsenookh	A folding knife.	Eeneetl, or Eeneetla ..	A dog, or a goat.
Klooksh, or Klookh	Good, or signifying any degree of excellence.	Kleeseemilkh	A name which they sometimes applied to our goat.
Cheminé	A fish hook.	Heeneekatecham 340	A fox's head carved in wood.
Tushkummoot	A bladder.	Meetamass	Leather earrings.
Peatsoop.... 300	The inner bark of the pine.	Kocha	Let go.
Quoinné	The wing of the gull.	Wasé	This word has various significations, as what, these, this way, and where is such a one? etc.
Kesitta	A wooden vessel.		
Klapáat	A little matted basket.		
Okokomilkh	A little conical wooden vessel.		
Nyakpatto 305	A large spear used both in war and in fishing.	Numerals.	
Echtak	A large spear used only in fishing.	Sauwáak	One.
Ezeemma	A fishing net.	Ahtkla, or Akkla 345	Two.
Klumma....	The posts of a house, also the name for the large images.	Kutsa or Katsna	Three.
Sakkameess	The outer pine bark.	Moo, Mo, or Moatla	Four.
Eneetsekass 310	Shooting or hunting.	Soocha or Socha	Five.
Klitchéatleesh kaomné, or Kaomné kah- sheetl.	The pigeon is killed.	Noopo or Noopokh	Six. [but cf. 371.]
Klootakoore	Mussel shells.	Atkhpo or Atlpo 350	Seven.
Kloochkast	Dried mussels.	Atlaqualkh	Eight.
Chelceemah	A small string, or thread, of bark.	Souwaqualkh	Nine.
Klooshlahtimmé 315	A loom, or the cross- sticks on which they make their cloth.	Haeeeo	Ten.
Makya	A box or chest.	Saomeleepahaeeco	Eleven.
Klakhachémé	The supporters of the loom.	Ahtklemehapahaeeco 355	Twelve.
Malke	A deer's horn.	Kutsamelepahaeeco	Thirteen.
Klehalkh	A long narrow mat.	Moomahlehapahaeeco	Fourteen.
Koocheetl 320	Cutting with a mussel shell.	Soochamehlelepahaeeco	Fifteen.
Sunnapalth	A fishing line made of seaweed.	Noopomehlelepahaeeco	Sixteen.
Teekptint	Easing one's self.	Athpomehlelepahaeeco	Seventeen.
Clautra	The other.	Atlaqualkh mehle- pahaeeco.	Eighteen.
Ametl	To-morrow.	So wa qualkh mekle- pahaeeco.	Nineteen.
Atcheetl 325	The wind.	Sakaitshaeeco	Twenty.
Akak	Show me; let me see what you have got?	Haee e mehlepatsakeets- haeeeo.	Thirty.
Kleesookh	Clean; new.	Haeeeo Akkleook 365	Forty.
Alchuts	Ducks' feet.	Haeeemetlaputla akk- leok, or Kutsatlish- haeeeo.	Fifty.
Teekoomilkh, or Ook- lash.	The barb of a whale harpoon.	Haeeemehlaputkutseak- haeeeo.	Sixty.
Klooksquapulth.... 330	The name of the line belonging to this har- poon.	Moocakhaeeo	Seventy.
Enowass annee	Go away.	Soocheakhaeeo	Eighty.
Kamechlevk	A snare for catching birds.	Haeeemetlaput sooche- akhaeeo. 370	Ninety.
		Noopok	One hundred. [but cf. 349.]
		Haeeemehlaput noopok haeeeo.	One hundred and ten.
		Atlpokhaeeo	One hundred and twenty.
		Haeeemehlaput atlpok- haeeeo.	One hundred and thirty.
		Atlaqualkhuk haeeeo 375	One hundred and forty.

Nootka.	English.	
Haceemhtlaput atla- qualkhuk haeeeo	One hundred and fifty.	N.B.—As much of their reckoning as consists of tens they frequently enumerate by signs, in which case <i>haeeeo</i> is entirely omitted. From twenty to thirty, and from that to forty, and so on, the numbers that express the first nine, are used without any variation. For having computed nine, it is customary with them to clap or clasp their hands together, which always signifies ten. Thus by two clasps we are to understand twenty, three clasps thirty, etc.
Sowaqualkhuk haeeeo	One hundred and sixty.	
Haeeecookh	One hundred and seventy.	
Sukkytzuk haeeeo	One hundred and eighty.	
Haceemehalputsukkytz haeeeo. 380	One hundred and ninety.	
Atlecook haeeeo	Two hundred.	

VOCABULARY OF THE PRINCE WILLIAM'S SOUND LANGUAGE.

Prince William's Sound.	English.	Prince William's Sound.	English.
Eelalee	An expression of friendship similar to the <i>haweelkh</i> of Nootka; it sometimes too comprehends <i>haweelkh nahaié</i> , which is begging a present of you on account of friendship.	Teekuk	The forefinger.
Keemahlook	A dress or jacket made of the entrails of some animal.	Koogakleec	The middle finger.
Toksheets	A fishing spear.	Peenaenk	The ring finger.
Meek, or Week	No.	Ekursqua	The little finger.
Tungé	5 A bow.	Chootee	The ears.
Wenaka, or Pakuan	A paddle.	Sheetoa	40 The nails.
Ameeleek	A canoe.	Renga	The eye.
Noonookoon	A seal's skin.	Ooloo	The tongue.
Shuggnaluk	A fine twisted fishing line.	Natga	The feet.
Hakee, or hagee	10 A basket.	Koomoca	The leg.
Aeweenuk	A hat, or one of their conical caps.	Agulchee	45 The white bear's skin.
Noogaweeek	The wooden cap made in the form of a seal's head.	Pedok	No; no more, or I have nothing more.
Adkooga	A dress made of the skins of birds.	Nahloomuk	The stool which they sit upon in their canoes.
Cheeqnea	Ornaments for the nose.	Kapaka	A bladder, or a skin blown out like one.
Oongneet	15 The beard.	Cheemcouk	More, give me more.
Gneek	The nose.	Locheen	50 Their buskins.
Chooduk	The ear.	Kai	What is that?
Aloogana	The brambleberry.	Mudjuk, or Koonce	It rains.
Utcha	The blueberry.	Esht-est-esh	Ho! you! do you hear? calling to one.
Aksookok	20 Oil, or oil in a bladder.	Kuttak, or Oolook	Red ochre or paint.
Eigok	A dog.	Tahoo	55 Take it.
Hok	An arrow.	Eamak, or Tooneen	Blue paint.
Nooeet	The hair of the head.	Neegoowahtok	A pump, or a hollow tube of wood which they use as one.
Cheepa	A skin like a sheep's.	Eikowannuk	Pumping, or sucking the water out of their canoes with the above tube.
Natoonishuk	25 An otter, or its skin.	Choolook	A feather.
Eetaga	An otter's paw.	Sheetreega	60 The proper name of a man.
Pameela	An otter's tail.	Aleek	The name for their coat of mail.
Nushkoo	An otter's head.	Nooquak	An instrument for casting darts.
Peiktok	The bone barb of an arrow.	Laklak	A martin's skin.
Oonge	30 The otter's whiskers.	Keequen-kee	Cutting with a knife.
Noutee	The teeth of any animal.	Cheekoo	65 A knife.
Pamoollee	The otter's claws.	Ekoonuk	Wood of any kind, but more particularly fire-wood.
Chooloo	An otter's fur.	Apsheok	Smoke.
Nungeena	The thumb.	Koonuk	Fire, or a spark of fire.
		Pee-cuhita	The proper name of a dog.

Prince William's Sound.	English.	Prince William's Sound.	English.
Aganuk 70	A woman.	Kantaphuk	An oblong dish, made like our chip boxes.
Ohwhinné	To-morrow.	Noweungwashuk 100	A blue gull.
Yamak	A small fishing spear.	Choochwak	Its bill.
Ko	Take it back again, refusing an article in bartering as not sufficient.	Eetega	Its feet.
		Cheetoon	Its claws.
		Shukhé	Its wings.
Neentook	A cover for preserving the barb of an arrow.	Taeeduk 105	Come here; an invitation.
Oongmen 75	The barb of an arrow.	Taeeduk eelalee	Come here, for they are our friends.
Waloo	The point of a spear.	Euweila	The sinews out of which they make lines.
Agalehou	What is that?	Quehak	An earring of pearl shell.
Koonahamego	A louse.	Kullingeuk	A bag made of the gold beater's leaf.
Chooak	A hatchet.	Keena 110	A wound.
Cheelfnuk 80	A very fine plaited fishing line.	Aceetuk	Mitts made of the bear's skin.
Tooptooquen	To eat, fit for eating.	Koocek	Coughing.
Nippeon	A root like the fern, which they eat.	Tunechluk	A bear.
Cheenoohak	A quiver.	Ebugeek	The holes in the under lip.
Eualoo	A thick square line made of guts.	Alok, or Atlok 115	One more, give me one more.
Keeloo 85	The intestines of which they make the stuff, resembling our gold beater's leaf.	Eengé	Let me see it, or let me look at it.
Meengoon	A needle.	Koobeetuk	Whistling.
Tuphak	A fishing line made of guts.	Oona	Buy it, or give me that and I will give you this.
Tummeeneuk	A goose.	Chitló	More; give me more.
Nushkootoleek	A wild duck.	Malook 120	They sometimes used this word in the same sense as it is at Nootka.
Kalshkanuk 90	A magpie.		
Teytweek	A kingfisher.		
Togoonuk	Dead.		
Ehlebit	A present; keep it.		
Hamukbquok	A mussel shell.		
Pectoong 95	Dried salmon.		
Cheemeh	A small blue bead.		
Sungé	A small image.		
Keelaquok	A rattle of dried bar-nacle shells.		

NOTES ON THE ABOVE VOCABULARY.

Besides Cook's vocabulary above mentioned several other lists of Nootka words have been published. They were republished by Buschmann (*Abh. der k. Academie der Wiss. zu Berlin*, 1857, pp. 366ff) with an alphabetical key. The titles of these four works there cited will be found in Pilling with the exception of the *Relacion del Viaje* (Madrid, 1802).

In Strange's vocabulary a few words are repeated, sometimes with a change of meaning; *Konee-emmitz* means chickweed (85) and a sort of seaweed (215); *Kowas* means idol (164) and is the name of a god (206); *apseoop* occurs twice (232, 294). *Kapsap* (337) is struck out without being replaced by any other word.

Strange evidently wrote down these numerals at different times, or copied them very carelessly from his notes, as is apparent from the variations in the spelling of the numbers from ten to twenty. The scale is evidently vicesimal, but there seem to be considerable errors in the higher numbers; the terms for seventy and eighty are apparently omitted and the relations of the subsequent numbers as far as 190 correspondingly shifted. The spelling is throughout very irregular, cf. *sakaits* (20) and *sukkytz* (180 [200]).

N. W. THOMAS.

CENTRAL AMERICA.

Costa Rica.

Sapper.

Ein Besuch bei den Chirripó- und Talamanca-Indianern von Costarica. Von K. Sapper. (*Globus*, LXXVII, 1, pp. 1-8, 28-31.) Presented by the Author. **59**

The author's journey, undertaken in the spring of 1899, covered much the same ground as that of Dr. Bernardo Thiel in 1889-90 (*Viajes á varias partes de la República de Costa Rica*, San José de Costarica, 1896, esp. pp. 36-51).

He describes in detail the typical round or oval houses (*palenque*) and the daily life of the natives, figuring a Talamanca *palenque* (Fig. 1) with plans and sections; Talamanca women grinding with a large saddle quern (Fig. 2); Talamanca man fishing with bow and arrow (Fig. 3); and women in everyday costume, carrying burdens with a band over the forehead (Fig. 5), or children in a sling of cloth astride of their hips behind (Fig. 6). Fig. 4 gives a river scene, with dense vegetation and a native boat; Fig. 7, the Talamanca chief, Antonio Saldaña, in European shirt and trousers, native feather headdress, and necklace with pendant; Fig. 8, three other Talamanca men with feather headdresses and staves. The former native costume consisted of a girdle, or in the case of the women a broader wrapper of bark cloth (*detzi*) made from the *mastate* tree in the usual way by boiling and beating; but European clothes are beginning to be common. The majority also of these Indians are now nominal Christians, and little was to be learned of their former belief or social institutions; but the dead are still exposed to decay on a sort of platform, the bones being subsequently smoked over the house-fire and put away in burial-places, which are kept secret, with a ceremony accompanied by drinking, singing, and beating of drums covered with iguana-skin. The author gives a full description of a peculiar wind-instrument made of a marine spiral shell with a hole bored in the side and used like a flute, and appends examples of native music. He notes particularly the strongly marked chanting intonation of the ordinary speech of the Chirripó Indians, ranging over intervals of a fifth or a seventh, and admitting clear breaks of a third or a fourth.

The author also visited the fast vanishing tribe of Estrella Indians, who belong to the same race and linguistic group as the Chirripós, and notes their habit of using a short bow and headless arrows indoors, to scare away intrusive dogs and pigs without troubling themselves to move.

J. L. M.

Mexico.

Howarth.

The Cordillera of Mexico and its Inhabitants. By O. H. Howarth, C.E., F.R.G.S., F.G.S.: read before the Royal Scottish Geographical Society, December 14th, 1899. (*Scottish Geographical Magazine*, 1900, pp. 342-352.) **60**

After describing the country itself, and its fauna and flora, the author classifies the human inhabitants of the Great Cordillera as, "(1) the aboriginal or Indian population; (2) the modern or business population, concerned largely with mining and allied trading pursuits; and (3) . . . scattered individuals or families, whose presence in the remote mountain nooks of the great range is often difficult to account for except through the chapter of accidents, and forms an interesting subject of enquiry." In regard to the first class, "the few surviving families of Apaches, Tamaris, Cotas, Yaquis, and other mountain tribes are rapidly undergoing absorption, as one after another is led gradually to discover that industry pays better than fighting."

"Amongst some of the native tribes, who have come in contact with even Mexican civilisation, it is curious to notice that the fact of being an 'Indio' is associated with a certain sense of reproach, and an anxious desire is sometimes evinced to claim 'Mexican' nationality as well, the idea being evidently connected with a more advanced phase of existence. In fact, the term 'Mexican' in a general sense must now be taken as representing a distinct nationality." (p. 349.)

"The warlike sections of the Indian race are rapidly becoming extinguished," even the Apache, of whom only a few families remain in the wildest part of the Sierra Madre in Sonora. "For the most part the tribes between the north-west and the far south are small of stature and inoffensive in their character, but in the southern States of Oaxaca and Tehuantepec the Zapotecos, a people of superior physique and intelligence, represent probably all that remains of the ancient Mayas."

Of the "modern population," the author notes as a remarkable characteristic the "hereditary poverty" of the mountain Mexican, "his placid acceptance of all sorts of adverse conditions of life without the slightest effort to remedy them, even when the means lie to his hand . . . it was not the way of their forefathers to do or desire such things" as comforts or luxuries, "and even actual physical suffering does not seem to prompt them to the attempt," *e.g.*, "a fire on a frosty night is a proscribed luxury." (p. 351.)

In regard to the waifs and strays Mr. Howarth gives curious instances of Europeans who have found a retreat up country, and in some cases almost forgotten their native languages in their solitude.

The paper is illustrated by photographs, among which are "A group of Pueblo Indians" (p. 342); "A Mexican Prairie Schooner" (a flat-bottomed cart with a pole, on massive wheels, carrying a hut of hurdles and boards with thatched gable roof, p. 344); and "A Miztec's house and family" (wooden frame, with hurdle walls and thatched roof, p. 346).

J. L. M.

SOUTH AMERICA.

Colombia.

Dalton.

61 *Note on a Stone Figure from Colombia, S. America.* Communicated by O. M. Dalton. (Plates I-J).

This interesting figure, both sides of which are illustrated, was obtained at San Augustin by Rear-Admiral Dowding, R.N., in 1899, and has been presented by him to the British Museum. It represents a warrior with shield and club, wearing a waistcloth and a fillet round the head. Statues of this kind, dating from a period anterior to the Spanish Conquests, still exist in considerable numbers about the Upper Magdalena River, but they are said to be gradually sinking in the soft earth and disappearing from sight. Most of them are larger and heavier than the example here shown, and for this reason the difficulties of transport to the coast are considerable. Admiral Dowding had secured a valuable series of photographs illustrating some forty or fifty of these larger figures, but these were most unfortunately lost owing to the wreck of a steamer in the River Patia. An account of these remarkable monuments, with several rather rough illustrations, will be found in C.C. Marquez, *Prehistoria y Viajes*, Bogota, 1893.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.



FIG. 6.



FIG. 7.



FIG. 8.

BRACELETS OF FLINT FROM EGYPT.

ILLUSTRATING SUCCESSIVE STAGES IN THEIR MANUFACTURE.
(Printed from blocks kindly lent by Dr. H. O. Forbes.)



1a.



1b.

1.—FROM HERAKONPOLIS: IN THE
GIZEH MUSEUM.
a Obverse, *b* Reverse.



II.—PROBABLY FROM ABYDOS; PART IN THE LOUVRE, PART IN THE BRITISH MUSEUM.
The three surviving fragments are represented pieced together.



IIIa.

III.—FROM HIERAKONPOLIS: IN THE ASHMOLEAN MUSEUM, OXFORD.

a. Obverse. b. Reverse.



IIIb.



IVa.

IV.—PROVENANCE UNKNOWN: PERHAPS FROM ABYDOS: IN THE LOUVRE.

a. Obverse. b. Reverse.



IVb.



Va.

V.—PROVENANCE UNKNOWN: IN THE GIZEH MUSEUM.

a. Obverse. b. Reverse.



Vb.



VIIa.

VII.—PROVENANCE UNKNOWN: IN THE BRITISH MUSEUM.

a. Obverse. b. Reverse.

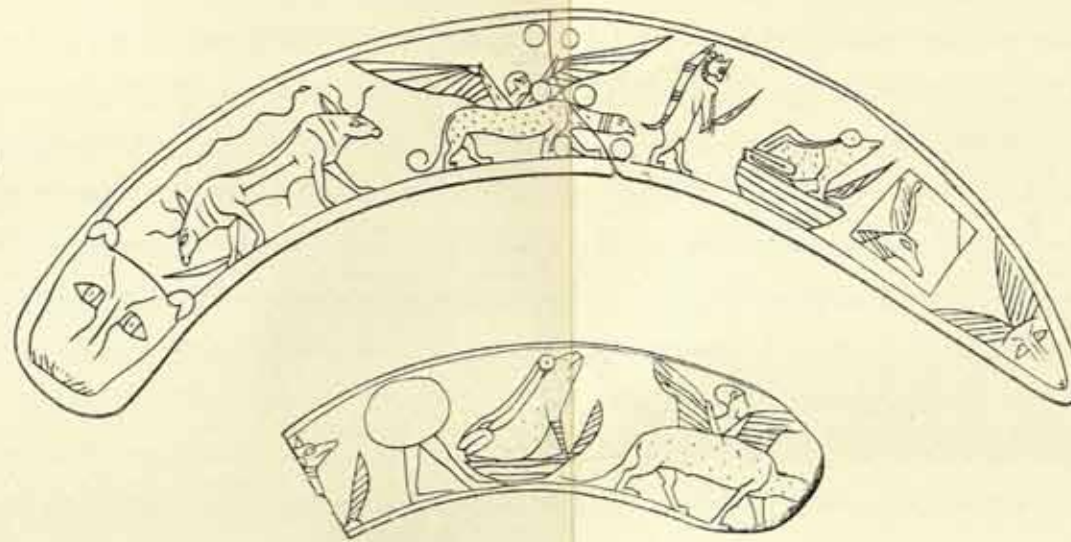


VIIb.

[VI: see Plate D.]

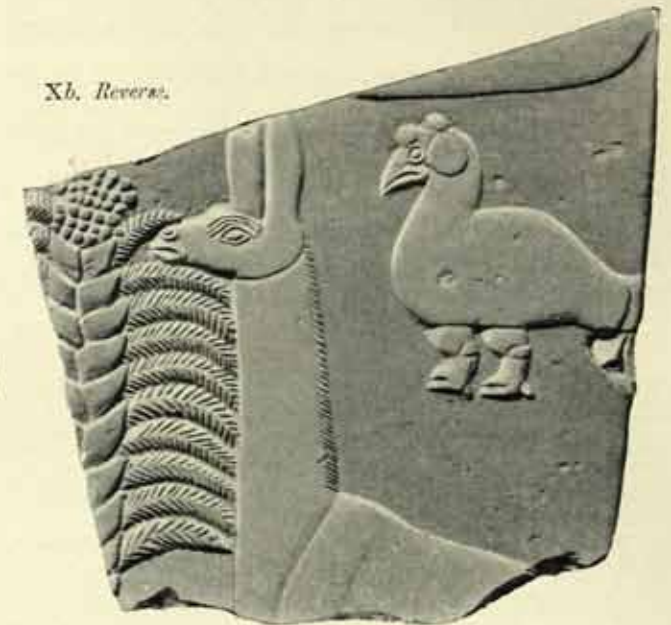


Xa. Obverse.



VIII.—IVORIES: IN THE BRITISH MUSEUM: HALF REAL SIZE.

Xb. Reverse.



VIa. Obverse.



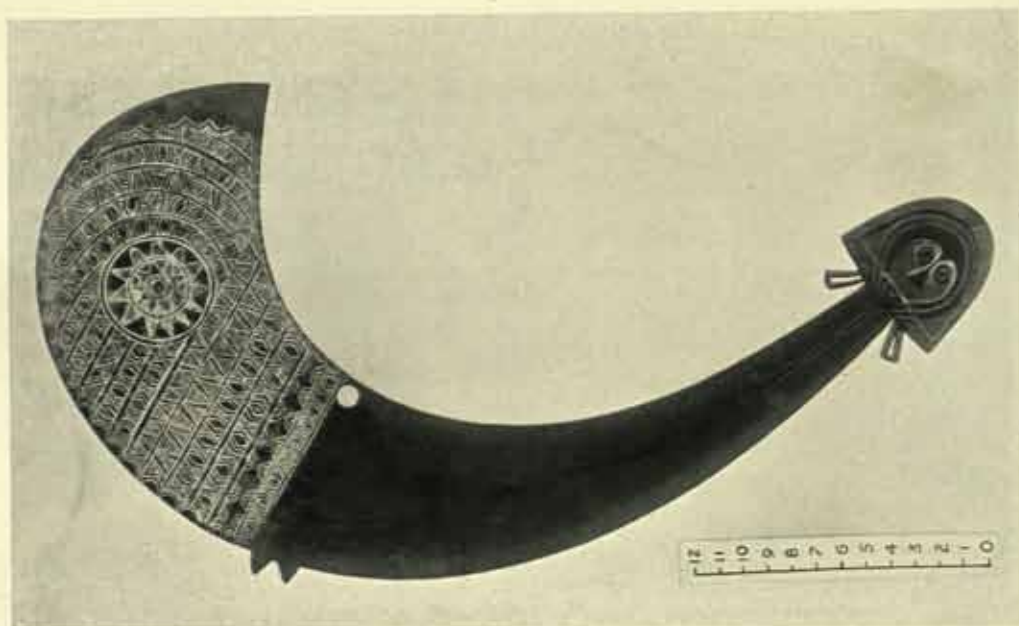
VIb. Reverse.

VI.—PROVENANCE UNKNOWN: THE LARGE FRAGMENT IS IN THE BRITISH MUSEUM; THE SMALLER ONE (X) ABOVE, WHICH FITS IT, IS IN THE ASHMOLEAN MUSEUM, OXFORD.



MAORI CARVINGS FROM A PATAKA OR STORE-HOUSE: NOW IN THE AUCKLAND MUSEUM.

To Illustrate the Genesis of the Maori Scroll Pattern from representations of Manaias.
(*Miscellanea*, 1900. *a*. No. 41; *b*. No. 40.)

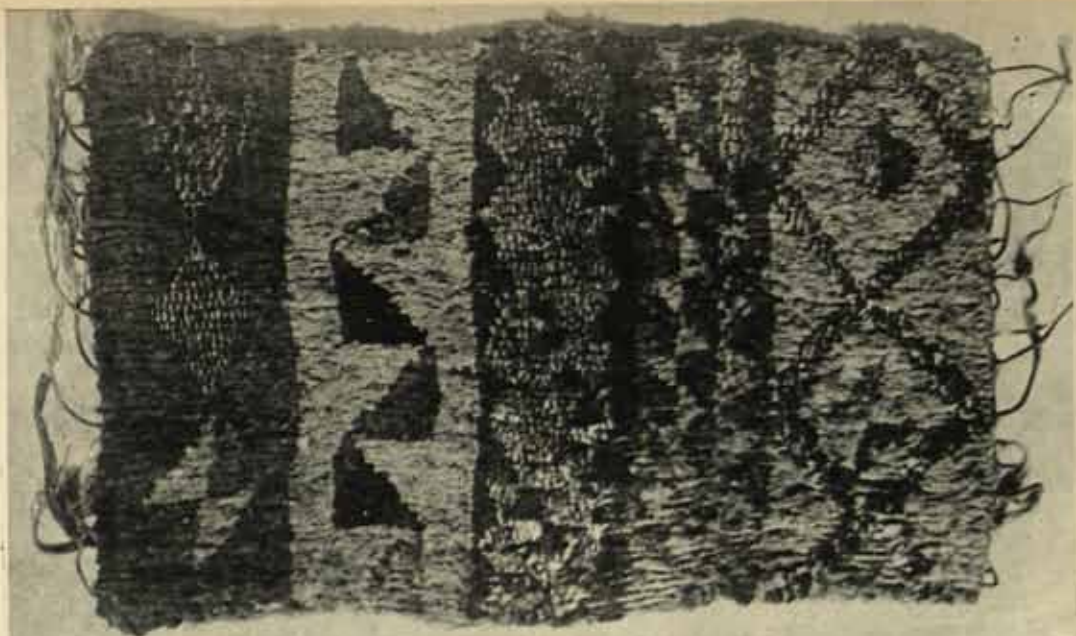


OBJECT OF UNKNOWN USE FROM THE SOLOMON ISLANDS: PROBABLY A "TINDALO" EMBLEM.

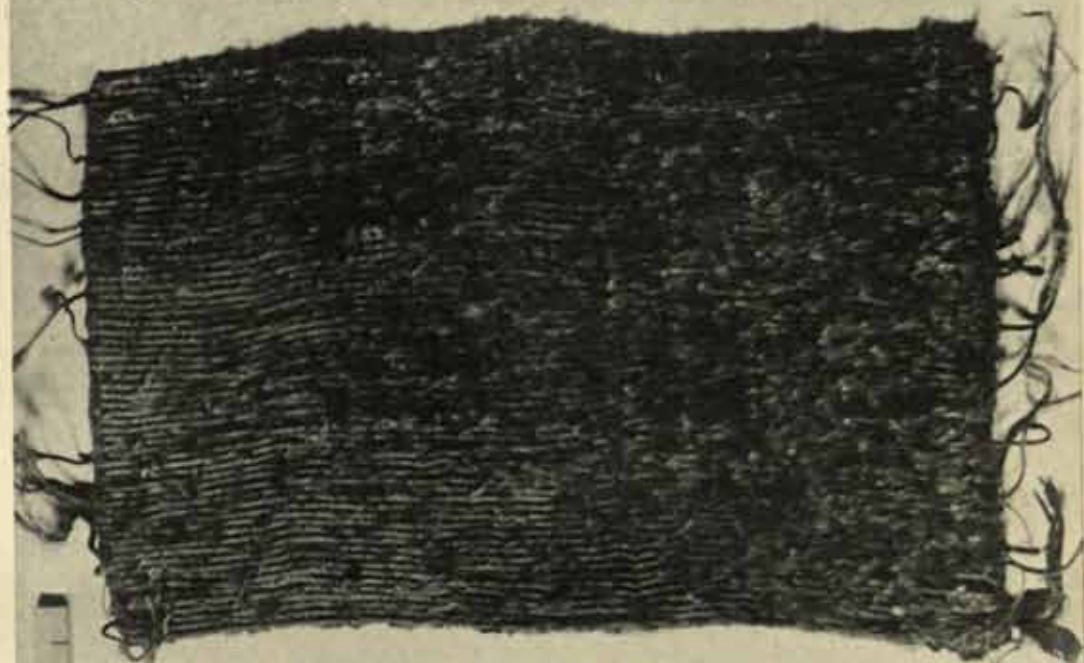
(*Miscellanea*, 1900. *No.* 45.)

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SYMPTOMS OF THE ACUTE INFLUENZA
SYMPTOMS OF THE ACUTE INFLUENZA

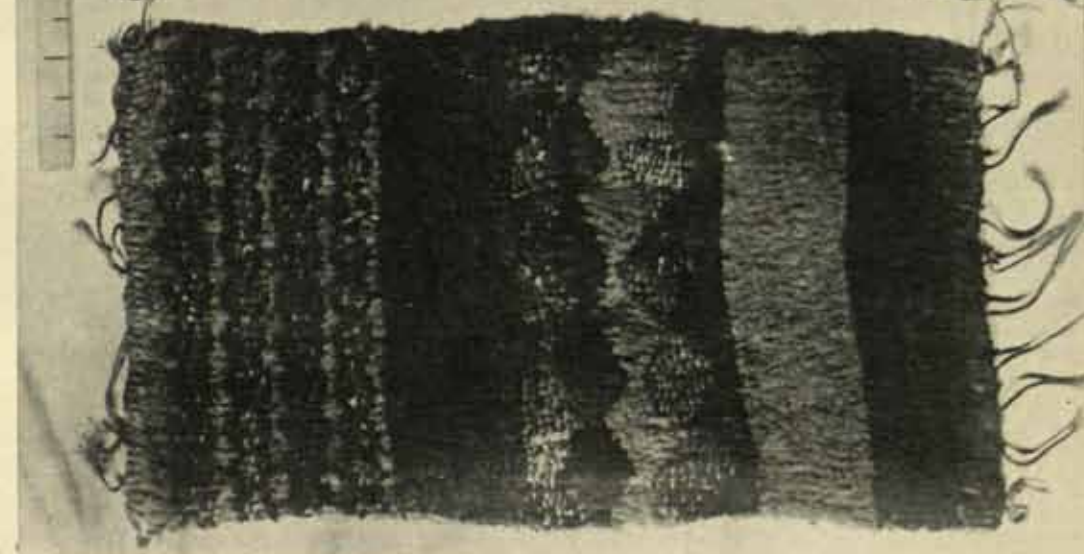
1.



2.



3.



FEATHER MATS IN THE BRITISH MUSEUM.

(Miscellanea 1901. No. 47.)

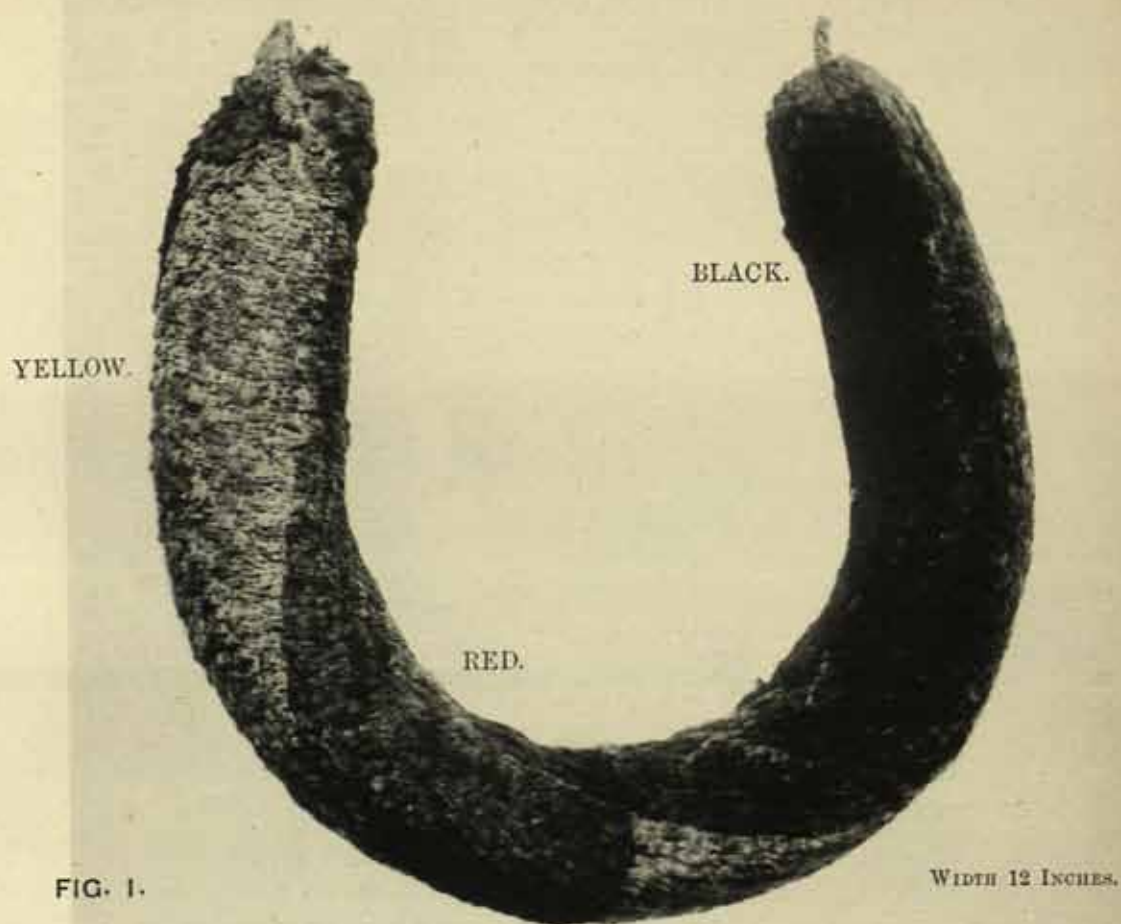


FIG. 2.

LENGTH 41½ INCHES.



FEATHERWORK CORONET, AND WOODEN BOX FROM TAHITI.

IN THE BRITISH MUSEUM.

(*Miscellanea* 1901. No. 47.)



HEAD OF SHELL ADZE.
SEEN FROM IN FRONT: SCALE $\frac{1}{2}$ NATURAL.
(*Miscellanea*, 1903. No. 49.)



SHELL ADZE FROM AMBRYM ISLAND,
NEW HEBRIDES.
SIDE VIEW: SCALE $\frac{1}{2}$.





THE METRIC SYSTEM OF IDENTIFICATION OF CRIMINALS, AS USED IN GREAT BRITAIN AND IRELAND.

BY J. G. GARSON, M.D.

[PRESENTED 5TH JUNE, 1900.]

SIX years have elapsed since a Committee, appointed by the Home Secretary of State to inquire into the best means available for identifying habitual criminals, presented their report, and the recommendations they made were adopted by the British Government. During this period the system then inaugurated has been steadily maturing, and the time has come when we may, with advantage, review its progress and critically examine its efficacy.

Soon after the publication of the report of the Committee, the Home Secretary did me the honour to appoint me scientific expert to organise the introduction of the new system, and my duties in connection with it have continued without interruption ever since.

As the report just mentioned formed the basis from which the system now in use was started, it is necessary to recapitulate its salient outlines, in order to complete the history of the introduction of the metric system of identification into England.

The Committee consisted of Mr. C. E. Troup, C.B., then in the Criminal Department of the Home Office, as Chairman; Major A. Griffiths, then one of H.M. Inspectors of Prisons; and Mr. M. E. Maenaghten, the Chief Constable attached to the Criminal Investigation Department of the Metropolitan Police, with Mr. H. B. Simpson of the Home Office as Secretary. While the Committee thus constituted did not include any scientific expert, it was composed of experts of high standing in the various departments of the public service which have to deal with crime and criminals.

The warrant appointing the Committee directed them to inquire (a) into the method of registering and identifying habitual criminals then in use in England; (b) into the "Anthropometric" system of classified registration and identification in use in France and other countries; (c) into the suggested system of identification by means of a record of finger-marks; to report whether the anthropometric system or the finger-mark system could, with advantage, be adopted into England, either in substitution for, or to supplement the then existing methods, and, if so, what arrangements should be adopted for putting them into practice, and what rules should be made under Section 8 of the Penal Servitude Act, 1891, for the photographing and measuring of prisoners.

The terms of reference were thus amply wide enough to cover the whole field, and a study of the report shows that the whole question was gone into by the Committee and considered with the greatest care and thoroughness.

It is, perhaps, necessary to state the reason why it is important that habitual criminals should be identified. In all civilised countries, it is a well-recognised principle of justice that persons who make crime their calling or profession in life, should be dealt with in a different manner from one who, for the first time, commits a criminal offence. This being so, it is not only important to know the antecedents of a prisoner about to be dealt with by law, but also that no mistake shall be made as to his identity, and, above all, that an individual who is not an habitual criminal, and innocent persons, shall not be by error identified as being one who is an habitual criminal.

The method by which identity is *proved* in the criminal courts of this country is dependent upon the personal recognition of the prisoner by police or prison officers, and, till the introduction of the metric system, it was also the basis by which identity was *discovered*. In country districts and in the smaller cities and towns, local criminals are well known to the police, and information as to new settlers is soon obtained. The case is quite different in large cities and towns where individual knowledge of the in-dwellers becomes a matter of impossibility. There are criminals also, who, after conducting operations in one district for a time, find it advantageous to themselves to transfer the field of their labours to some new place, almost invariably a large city, where they are unknown to the police, and may ply their nefarious mode of life for a while with more or less impunity.

To assist the police in identifying habitual criminals, a register was specially established by Parliament, in 1869, for general use throughout the country, in which are entered the names, description, crime, and other particulars, of every convict, and "person convicted on indictment of crimes, a previous conviction of a crime being proved against him," discharged from prison during the year, and a copy of it is supplied to all police forces and prisons throughout the country. A register of the distinctive marks on the persons of habitual criminals was also instituted and distributed with the register. The various police forces have also instituted registers of their own, printed descriptions of noted criminals, and the like, to assist their officers in recognising persons who are habitually engaged in crime. The photographs of such persons have likewise been collected for several years, and, in the Metropolitan Police Office, may be numbered by tens of thousands, if not by still higher figures. Systematic observations and inspections, by police and prison officers, have been instituted of arrested persons, with a view to the recognition of such of them as have been previously convicted, and inter-communications between police forces have been freely resorted to with the same object.

Notwithstanding the best efforts of the police and prison officers, mistakes in identification have occasionally occurred, and a considerable number of old

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offenders pass through the Courts unidentified. Of the accuracy of these statements I have had good evidence during the last few years. Almost immediately after the introduction of the metric system into England, I was called to report upon the identity of a man who had been convicted of larceny and sentenced to a term of seven years' penal servitude. At his trial he had been identified as the individual who committed the larceny, with which he was charged by the shopkeeper who had been robbed, and by his assistant, and he was sworn to by prison officers as an old offender who had been in prison in England during certain periods. After conviction he stated, in a petition to the Home Secretary, that at the time of the larceny and during the periods he was said to have been in prison in England, he was undergoing a sentence of imprisonment in France. On inquiry being asked whether he had been measured before his discharge from the French prison, he replied in the affirmative, and gave the name under which he went at the time. His metric description having been taken here according to M. Bertillon's system, and a copy of the metric description of the individual he asserted himself to be having been obtained through the courtesy of M. Bertillon, a comparison of the two descriptions showed most clearly and conclusively that both referred to one and the same individual, and that consequently serious mistakes had been made by witnesses at his trial as to his identity; the conviction and sentence were accordingly quashed. Another case may be mentioned of mistaken identity occurring more recently, where a man convicted of robbery was identified as an ex-convict, but from our own metric office the true identity of the prisoner was found to be that of another convict who had been liberated on licence. The fact that a considerable number of old offenders escape identification at trial for subsequent offences is continually being demonstrated, as almost every month several cases occur, especially in the metropolis, of persons sentenced as first offenders, but who, on their metric description being sent to the Habitual Criminal Registry by prison governors dubious of their previous freedom from crime, or at the request of the police, are found very frequently to have not one but several previous convictions recorded against them, a matter of considerable importance under the First Offenders Act of 1897. The report of the Committee contains particulars of several cases of mistaken identity and failure to identify old offenders. I have, however, thought it well to mention the above incidents which have come under my own observation subsequently, and which go to prove the utility of our metric system and also its efficiency for the purpose for which it has been established.

When a criminal always gives the same name every time he is arrested, it is usually a comparatively easy task to trace his antecedents once he is on the Register of Habitual Criminals, even though he may move from place to place, but when he gives a different name on each occasion and at each place he is apprehended, the difficulty of identification under the old system from registers, descriptions, photographs and the like is very great, in consequence of the absence of any satisfactory classification of records being possible; hence it has been no

uncommon occurrence for a police force to arrest a prisoner against whom many previous convictions are recorded in the volumes of the Registers of Habitual Criminals carefully preserved on the shelves of their own office and diligently perused, without their being able to identify him from these registers. In the cases where identifications are made by the old system, success is obtained in many instances only after long and laborious search, and I cannot but think that chance enters very largely into the result when the prisoner is successfully traced; in other words it is much more by good luck than good guidance that he is recognised.

The Committee, as a result of their investigations, reported that the old system of identification, then in use, was not satisfactory, and left much to be desired on the grounds (a) of mistakes in identification, (b) failure to identify old offenders, and (c) the labour involved in making identifications.

They then proceeded to formulate what should be the essential features of any system suitable for purposes of identification of old offenders, and to examine the various methods which scientific study of the question has made available for this object.

The essential features required in such a system they define as "a means of classifying the records of habitual criminals, such, that as soon as the particulars of the personality of any prisoner (whether description, measurements, marks, or photograph) are received, it may be possible to ascertain readily, and with certainty, whether his case is already in the register, and, if so, who he is." Such a system the Committee believed to be unattainable by further development of the existing methods then in use, and that, if it is to be found at all, it must be found in the application of some such scientific method as those on which they were directed to report.

In proceeding to the consideration of the metric system, originated by M. Bertillon in Paris, and the proposal of Mr. Francis Galton to utilise the impressions of the fingers for purposes of identification, the Committee entered upon the scientific part of their inquiry, and I cannot refrain from taking this opportunity of expressing my high appreciation of the thoroughness with which they have mastered the details of these systems, and the principles whereon they are founded, brought before them by the various scientific witnesses examined, likewise on the soundness, from a scientific point of view, of the conclusions arrived at regarding the respective merits of each system.

The Bertillon system of identification has been so much before public notice of recent years, that I need not go into it here in detail, particularly as I shall have to describe, later on, the arrangement of records followed in England under the new system, which is, in its main features, the same as that used in France and other countries. I may, however, state briefly that it consists in recording the measurements of certain parts of the body which practically do not vary in size after adult life has been reached, the exact colour of the eyes, the shape of certain features of the face, a photograph showing the full face and profile

exact details regarding scars, tattoo and birth marks, and other particulars as to the individuality of the prisoner, and his criminal record. More recently, also, since the introduction in this country of the use of finger-prints, M. Bertillon has added the impressions of the first four digits of the right hand to his metric descriptions.

The cards bearing these records upon them are arranged on certain mathematical principles, according as the size of the parts of the body measured is small, medium or large, in what are termed "search cabinets," in a given order, without any reference to the name of the individual to whom it relates. A duplicate description of the prisoner is also classified alphabetically according to his name, but it is the first-mentioned classification which is one of the characteristic features of what is known as the "Bertillon System."

In order to find the card of any particular individual in the cabinets at any subsequent period, all that is required is to take a fresh metric description of him, and follow the same fixed line of procedure as was taken in storing the previous one. The measurements of the different parts of the body enable the very exact classification of the records requisite to be made, both in arranging them in the first instance, and in searching them subsequently for the record of any particular individual, while the other details as to the prisoner's personality place his identity or non-identity beyond question. The tripartite division of all measurements enables the search to be made with great rapidity, and the exact position in the cabinet of any previous record of the same individual to be determined with a minimum amount of labour in examining other records not relating to him.

This system, then, as far as regards measurements, is a very considerable advance towards fulfilling the requirements laid down by the Committee as essential for purposes of identification if absolutely invariable and accurate measurements could be obtained, but absolute perfection is not obtainable, all measurements being subject to some degree of error, either inherently connected with the parts measured, or from imperfection on the side of the measurer, besides which there may be error made in the classification of records. In practice, the amount of error arising from these different causes, if the system be properly worked and the measurers carefully looked after, is, as I shall be able to show, small and well within the margin required for efficiency.

The measurement of a part used in classification taken before the prisoner's discharge from prison, may be near the margin of a division, say the upper limit of the *small*, but being within the limits of that group, the record is placed in that division. Supposing the same individual be subsequently arrested and measured to ascertain if he is an old offender, and this time the measurer makes the same part slightly larger, so that now it falls within the limits of the *medium* division, search would be made in a different cabinet, or part of the cabinet, from that where the first record is situated with a negative result. In such a case, before we could say that a previous record of the prisoner is not in the collection, search

would have to be made in both the *small* and *medium* divisions. The same process would have to be gone through, with respect to all the other measurements that fall near the margins of divisions, so that a considerable number of searches may have to be made to determine the existence or non-existence of previous records. These *double searches*, as they are called, constitute the only difficulty in working this system, but fortunately, as I will show, do not greatly impair its efficiency, although they increase the labour in using it to a greater or less extent.

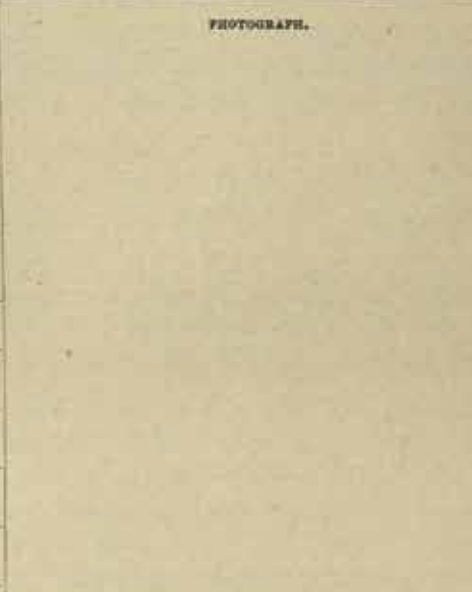
On the nature and variety of finger-prints, I have little to say in this Institute, where we have had on several occasions the benefit of Mr. Francis Galton's demonstrations on the subject. The Committee were much impressed with the efficacy of finger-impressions for purposes of establishing identity, as may be judged from the following sentences in their report:—"It seems impossible to insist too strongly on the absolute certainty of the criterion of identity afforded by the finger-prints. Considered merely as a test of identity, and not as a detective agency—there being no longer any question of classification—their use becomes at once extremely simple, and, in the hands of an expert, free from any danger of error. Apart altogether from their uses in tracing habitual criminals, it would be a very easy matter to use them much more extensively as a check to all identifications." By means of photographic enlargement, finger-impressions can be made so clear as to bring the power of comparing different sets with one another, and determining whether they are those of different persons or of the same person, well within the comprehension of the, intellectually, most poorly-gifted jurymen. On this point the Committee state—"In tracing a criminal the finger-prints would be of much assistance. For verifying identifications they would give a test, which, in the hands of a skilled person, would be unimpeachable." With these statements I most fully concur, and desire to emphasise the fact that they do not come from the pen of the scientific expert who might in the eyes of some people be considered to be prejudiced, but from a Committee of—may I say—laymen. To call special attention to this is the more necessary, because I find that a good deal of scepticism on the point exists in the minds of many persons who have to deal with evidence of identity as afforded by this source, and to whom the words of the Committee may appeal with some force of conviction.

When we come to deal with the use of finger-prints as a system of identification of criminals, including the classification of records and searching for previous descriptions of the same persons by means of the finger-prints, we find that serious difficulties arise, which, notwithstanding the labours of Mr. Galton and Mr. Henry, and, to a smaller extent, my own endeavours in that direction, have not been overcome, and which, I have reluctantly to admit, appear to me to be of such a nature as to prevent a thoroughly satisfactory system workable on the large scale we require in criminal work, without the assistance of measurements, from ever being possible. The chief difficulties to my mind may be briefly summarised as follows. The great number of intermediate forms of patterns on

the fingers makes it almost impossible even for an expert to be sure that he will always determine them as belonging to the same class and relegate them to it on all occasions. This difficulty is greatly increased if the impressions be not very clear and distinct—a desideratum not always attainable from a variety of reasons. To get adequate data for classification by finger-prints alone, the impressions of all the fingers have to be utilised, with the result that the chance of some of the impressions being defective or of intermediate pattern, and consequently of error in classification and subsequent search, is thereby greatly increased. The inequality in size of the classes, rendering it necessary to resort at once to a more or less intricate system of sub-classification of the more commonly occurring patterns, is distinctly a great drawback to convenient working in the systems of classification, already proposed, and one which it is not easy to see can, even by further research, be got over. Another difficulty, not easy of solution, arises when there is resistance on the part of the prisoner to having his finger-impressions taken. This last may be thought to apply equally well to measurements, but, as a matter of practical experience, it is found up till now that it is easier to get the latter with sufficient accuracy to enable the prisoner to be traced, than to get the prints of all the different fingers of both hands good enough for determining the location of the previous records of the prisoner which invariably exist in such cases. Under these circumstances, it is sometimes all we can do to decipher the impressions of one or two fingers for the purpose of making certain of his identity or non-identity. Again an acute criminal—and there are many of them—who cared to take the trouble to learn a little about finger-prints, might soon find out that it is the central portion or core which is of importance for identification purposes and essential for the classification of records, and might, by the application of caustics or fire, so scar that all-important spot in several fingers without detriment to the fingers themselves as to render his identification from a subsequent set of impressions impossible. It is true such a procedure would probably only serve him once. This would be impossible with measurements as he could not tamper with his head, or do more than attempt to trick the measurer while measuring the limbs, without serious permanent damage to himself. The number of *double searches* possibly required when two or more impressions of certain of the fingers are undecipherable from any causes in the most commonly occurring patterns is very great, owing to the number of sub-classes into which these have to be broken up, and the number of combinations of these latter which may have been present in the missing or undecipherable finger impressions.

The metric description of a prisoner as taken in England includes the following particulars:—(a) A general description of the individual; (b) Certain measurements of his head and limbs together with his height; (c) A photograph showing views of his full face and profile; (d) The principal scars and marks—natural and artificial—on his body and limbs; (e) The impressions of all the digits of both hands. These details are in all cases taken by prison officers, in the prison where the prisoner is

METRIC FORM.

FRONT.																					
Prison Register No. _____	H.C. Register No. _____																				
Name	Aliases																				
Age Year of Birth	<div style="text-align: center;">  </div>																				
Place of Birth																					
Complexion																					
Hair																					
Eyes																					
Occupation																					
*Sentenced at																					
" on																					
" *for																					
" to																					
<small>* Give offence in full, and if remanded only, substitute "Remanded" for "Sentenced."</small>																					
MEASUREMENT FORMULA.	<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small; margin-right: 5px;">FINGER FORMULA.</div> <table border="1" style="border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table> </div>																				
<div style="display: flex; justify-content: space-between;"> <div>MEASUREMENTS.</div> <div>DISTINCTIVE MARKS, SCARS, INITIALS, ETC.</div> </div>																					
Head Length	I.—Left Arm and Hand.	III.—Face and Neck.																			
Head Breadth																					
Face Breadth																					
Left Mid. Finger																					
Left Cubit																					
Left Foot																					
Height ft. in.	II.—Right Arm and Hand.	IV.—Chest.																			
Remarks		V.—Back.																			
		VI.—Rest of Body.																			

METRIC FORM : BACK.																								
Name	RIGHT FINGERS.																							
Prison Register No.																								
Prison																								
Date of Measurements																								
Signature of Measurer																								
Governor's Signature																								
1.—Right Thumb.	2.—R. Fore Finger.	3.—R. Middle Finger.	4.—R. Ring Finger.	5.—R. Little Finger.																				
LEFT FINGERS.		<p><i>Directions:—Before taking the impressions of the fingers, fold this Form exactly in two, and place the metal sheet between the folds.</i></p> <p style="text-align: center;">REMARKS.</p>																						
		Finger Formula.																						
		<table style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="border: none;">1.</td><td style="border: none;">2.</td><td style="border: none;">3.</td><td style="border: none;">4.</td><td style="border: none;">5.</td><td style="border: none;">6.</td><td style="border: none;">7.</td><td style="border: none;">8.</td><td style="border: none;">9.</td><td style="border: none;">10.</td> </tr> <tr> <td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td><td style="border: 1px solid black; width: 20px; height: 20px;"></td> </tr> </table>			1.	2.	3.	4.	5.	6.	7.	8.	9.	10.										
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1.	2.	3.	4.	5.	6.	7.	8.	9.	10.															
10.—L. Little Finger.	9.—L. Ring Finger.	8.—L. Middle Finger.	7.—L. Fore Finger.	6.—L. Thumb.																				

undergoing his sentence, or to which he has been taken on remand, and are recorded on a form 20·4 centimetres (8 inches) square, which is here reproduced, and also on a card 20·4 centimetres long by 10·2 centimetres (4 inches) broad, which is also shown. The essential difference between the two records is that on the card the impressions of only the first three digits of each hand are shown and no particulars regarding the prisoner's offence, hence its size is only one-half that of the form, a matter of considerable importance in storage.

The general description of the prisoner calls for few remarks or explanations. The age, place of birth, and occupation depend upon the veracity of the prisoner, which is most frequently not to be relied upon. The colour of eyes and hair and the complexion are stated in general terms. In the Continental forms much stress is laid upon the colour of the iris, which under the Bertillon system is used for classification and is divided into seven classes based upon its general colour when that is uniform, and that of its periphery and of the portion bordering on the pupil called the *areola* when these vary. The circumstances under which the metric descriptions are taken in this country in most cases preclude the possibility of having such details recorded with sufficient accuracy to render them of value. It was therefore wisely decided by the Committee that it was not desirable to burden the records with details beyond the general colour of the iris when viewed at a distance. The want of more information on this point has never been felt. The descriptions of the various parts of the face also recorded in detail by M. Bertillon are omitted in our English form, and we trust to getting such of them as are wanted from examination of the photograph.

The measurements of the head and limbs taken are all included in the Bertillon system. They consist of the dimensions of the following parts:—(1) The length of the head measured from the notch at the upper part or root of the nose, a point corresponding to the *nasion* in the skull, to the most prominent point on the back of the head, whether that point be situated on the median line or to one or other side of it. This measurement, it will be observed, corresponds with Virchow's length measurement of the skull. (2) The breadth of the head measured at right angles to the median line of the head wherever it is greatest but not including outer surface of the mastoid processes. (3) The breadth of the face between the outer surfaces of the zygomatic arches wherever it is greatest. This measurement was not formerly taken by M. Bertillon until after we had adopted it, but I am glad that he has now realised its excellency for identification purposes, and has substituted it on the French metric cards for the width of the ear which he formerly took¹; it is likewise included in the German and Austrian metric cards. (4) The length of the left middle finger, Digit iii of the Anatomical Series,

¹ This measurement is added as an Appendix in *Signaletic Instructions*, p. 259, an American translation, published in 1896, from the latest French edition of M. Bertillon's *Instructions Signaletiques*, published in 1893; the latter does not, however, contain any allusion to this measurement. It was adopted in our English system in 1894.

measured with the fingers bent at right angles to the metacarpal portion of the hand. (5) The length of the left cubit, taken from the posterior surface of the olecranon while that point is made prominent by bending the forearm on the upper arm at an acute angle, to the distal end of the middle finger. (6) The length of the left foot taken while the prisoner stands with the whole weight of his body resting on that foot only, and with the knee joint somewhat bent. (7) The height when standing erect.

In a general account of the system such as this is intended to be, it is unnecessary to go into further details as to how these measurements are taken.

The photograph showing exact full face and profile views of the prisoner are taken one-seventh of the natural size and according to the instructions of M. Bertillon in the section "*La Photographie Judiciaire*" of his work *Instructions Signalétiques*, 1893 ed.

The scars and marks on the limbs and trunk are likewise described exactly in the same manner as they are done in France, but the number of abbreviations used in describing them are not quite so numerous as those used by M. Bertillon. The particulars noted are (a) the nature of the scar or distinctive mark; (b) its form; (c) its size; (d) its direction; (e) its exact location. For facility of description the body is marked out into six regions, and the space assigned to each on the form and card is in proportion to the frequency with which marks occur upon them and the readiness with which they can be detected when present. I may say that in recording the marks and scars most attention is given to those which occur on the arms and hands and the face, while only the grossest deformities are noted on the lower half of the body, including the lower limbs, hence the small space assigned to the "Rest of body" (see p. 168). To secure the better and more uniform description of marks and scars, the details to be noted and the contractions to be used in so doing have been reduced to tabular form for the guidance and direction of the measurers, and will be found on the next page. The following illustrations will be sufficient to show that much time and trouble as well as space are saved by the descriptions of marks being taken in this abbreviated form:—

I. *Left Arm and Hand.* *Sc re of 0.9 hz at 10 ab elb ft ua.* This written out at length reads—scar rectilinear of 9 millimetres long, horizontal at 10 centimetres above the elbow joint on the front of the upper arm.

II. *Right Arm and Hand.* *Sc ov of 2.2/1.3 sl x at 6 bl elb bk fa*=Scar oval of 2.2 centimetres long by 1.3 centimetres broad slanting externally at 6 centimetres below the elbow joint on the back of the forearm.

III. *Face and Neck.* *Nv hairy cir of 1.0 at 3 ab i pt l eb*=Nævus or hairy mole circular of 1 centimetre in diameter at 3 centimetres above the internal point of the left eyebrow.

IV. *Chest.* *Sc cv x of 3.5 vr at 15 bl frk & 6 to r md*=Scar curved with the hollow or concavity externally vertical in direction at 15 centimetres below fork of breastbone and 6 centimetres to right of the median.

The Finger Impressions are taken on the back of the form and card directly

LOCALISATION OF MARKS.

No. 1. Nature and quality of mark.	No. 2. Shape.	No. 3. Size.	No. 4. Direction.	No. 5. Distance and relation to nearest fixed point.	Abbreviations for different parts of the body.		
					I & II.—ARM AND HAND.	III.—FACE AND NECK.	IV.—CHEST.
sc scar	re rectilinear	Stated in figures	h horizontal	at to be written before the distance	sh shoulder joint	fh forehead	fb fork of breastbone
tat tattoo	co curved (add direction of cavity)	Centimetres being the units, millimetres the decimals, thus: 1.5	v vertical	Distance to be stated in centimetres	ua upper arm	tu temple	clv clavicle or collar bone
navus, birthmark or mole	w wavy, up and down, undu- lating	Length only to be given in all line marks, length and breadth in all other marks	sl slanting		fo forearm	eb eyebrow	mid median line of body
pt point	j jagged	of	i internal, inwards, inner, inside	above	w wrist joint	ro root of nose	np nipple
fat fatlet, indistinct	br broken line	of should be written before the figures of size	e external, outer, outside, outwards	below	h hand	no nostril	na navel
pru proumbent	ci circular	Centimetres written thus: 1.4	u upper, upwards	behind	pm palm of hand	ch cheek	
several—many	ov oval	Millimetres written thus: 0.5, 0.8	d downwards	middle	j joint	cb cheekbone	
deep	ob oblong	Occasionally it may be necessary to add after figures:—		right (or to the right)	p phalanx	trv tragus of ear	V.—BACK.
small	sq square	cm centimetre		left (or to the left)	t thumb	lob lobe of ear	7th vertebra
anulopox	tri triangular	mm millimetre		and	f forefinger	mo mouth	mid median line of body
amputation	ir irregular (not to be used for linear marks)			(for other contractions see "Direction")	m mid-finger	larynx	
ankylosed, stiff	sh shaped				l little finger	pt point, end (of eyebrow, chin)	Names of other parts of the body must be written in full, for example:— nose, elbow, nose, &c.
somewhat, slightly					T-Y between thumb and forefinger	gl angle, corner (of eye, mouth, jaw)	

EXAMPLES.

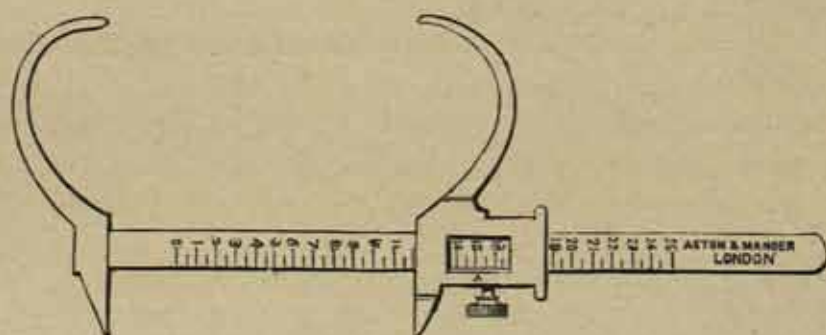
sc scar	re rectilinear	of 0.9 of 9 millimetres	h horizontal	at 10 cm. above elbow joint	on the front of the left upper arm.
sc scar	ov oval	of 2.2 cm. long by 1.3 cm. broad	sl slanting externally	at 6 cm. below the elbow joint	on the back of the right forearm.
sc scar	V shaped	of 1.2 cm. long by 8 millimetres broad	v vertical	on the back of the second phalanx of the middle finger of the left hand.	
sc scar	re rectilinear	of 1.4 cm.	sl slanting inwards	on the back of the 3rd joint of the forefinger of the right hand.	
navus, or mole hairy	ci circular	of 1 cm. in diameter	v vertical	at 3 cm. above the internal point of the left eyebrow.	
sc scar	co curved with cavity external	of 3.5 cm.	v vertical	at 15 cm. below the 7th vertebra and at 6 cm. to the right of the median.	
navus, or mole hairy	anulopox anchor	of 5 cm. long by 4 cm. broad.	v vertical	at 10 cm. below fork of breastbone and at 9 cm. to the left of the median.	

DESCRIPTION OF MARKS.

from the prisoner's hands. As it is the pattern on the palmar surface of the distal section of the digit which is of importance, the impression of that portion only is recorded. This is done by spreading a thin layer of printer's ink on a smooth polished metallic plate with an ordinary printer's hand roller, and applying the fingers lightly to the plate, so that the tops of the ridges on the surface of the skin become covered with ink, while the sulci between them remain uninked. The fingers are next gently laid on the paper for a moment and then removed with the result that a series of black lines, corresponding to the tops of the ridges of the skin and clear spaces corresponding to the sulci between each of them, remain permanently recorded on the form or card. It has been found necessary to take on the form a double set of impressions of the digits of each hand, except those of the thumbs, namely, daubed prints of the outer four digits which are impressed on the upper part of each half of the form, and rolled impressions which are placed in the spaces indicated across the middle and lower edge. The reason for this is two-fold. In the daubed impressions it is often found that owing to one or more of the fingers not being quite straight or the core or centre of the pattern not being always quite medianly placed, a portion of the surface which is necessary in the decipherment of the pattern has not come in contact with the paper, and in order to get the whole impression the finger has to be rolled from side to side as is done in the second set of impressions taken. Those then are the more important for determining the finger formula. But a mistake may easily be made by repeating the impression of one finger twice, or placing the impression in the wrong space. The daubed impressions afford a ready means of detecting errors of this kind, as it is not possible to alter the sequence of the fingers when taken together in series. Moreover, by having the two sets of impressions to compare with one another, it is often possible to determine the pattern when it is defective in the one or the other set. I have set forth the reasons for taking the double set of impressions on the card because by some Continental authorities it has been said that in England we devote too much space to the finger-prints and that the rolled impressions are quite sufficient. On the card only the rolled impressions of the thumb and two following digits of each hand are recorded, because having the impressions of all the fingers doubly imprinted on the form, it is only necessary to have a few fingers to compare when making search for previous records in order to determine identity or non-identity, and so obviate having to refer to the earlier form, which has been differently disposed of in the Central Office. Such then is the metric description taken of prisoners. This part of the work is done entirely in the prisons, of which there are 60 distributed over England and Wales.

The apparatus which is required in taking the metric descriptions, exclusive of the photographic outfit, consists of two calipers or sliding compasses for measuring the head and limbs; a 30 centimetre rule for measuring marks; a plate of polished copper, a 15 cm. printer's hand roller, for taking finger-prints, a standard rule and set square for measuring the height. The special furniture for the room consists of a stool for the foot measurement, which is also used as a seat while the

head measurements are being taken, and a trestle table for resting the forearm on, while the cubit is being measured: it also serves as a table on which to place the copper plate and form while the finger impressions are being taken. The apparatus and furniture are exactly the same as those used by M. Bertillon and figured by him, except the head instrument figured below, which is of my own design, and regarding which it is desirable to say a few words in consequence of its being different from the pattern adopted in France and some other countries. It is a repetition of the instrument used for measuring the foot, cubit and finger, for brevity called the limb calipers, except that while in the latter the cross arms are straight, in the head measuring instrument they are curved. Measurements are read off exactly at the same point and in the same manner on the two instruments, each millimetre between the measuring points is indicated on the graduated scale by the actual length of one millimetre. The Bertillon head calipers on the other hand are of the compass type, with the free ends curved, and the graduations are engraved on an arc of a circle attached to one of the limbs about midway between each end. The result of this is that the distance between one millimetre and another at the measuring ends is shown on the graduated arc where the measure-



ment is read, as only about *half* a millimetre. This makes the instrument somewhat difficult to read on account of the small space which intervenes between graduation marks on the scale indicating millimetres at the free ends of the instrument. Errors in reading are therefore much more prone to occur unless the measurer be extra careful and has very good eyesight or uses a magnifying glass. By careful attention to details of construction in the manufacture, between the stem and the sliding arm of the head calipers which we have adopted in England there is as little play as in the French instrument, and the former has the great advantage of being more easily read. During the six years it has been in practical use it has given me every satisfaction, and in several tests, instituted with the object of comparing the relative merits of the two instruments when placed in the hands of the officers who do the practical work of measuring, I have found that the results have been more accurate with the former, which I think fully justify the departure I have made in not adopting the more generally used instrument. But it may be suggested that the Indian modification of M. Bertillon's head calipers, which causes it to be automatic in action, might have

been adopted with advantage. I thought so also until I had a number of them in use, when I found that the device for procuring automatic action introduced a new source of error, quite as great as that which it was invented to avoid. While with a single instrument excellent and constant results are obtained, yet when several are used for measuring the same head, one after the other, different readings are shown by the various instruments according as the index is tighter or slacker in its movement and according as there are irregularities in the arc, although the pull of the spring which draws the limbs of the calipers together may have the same strength in each instrument. No doubt irregularities on the arc could be remedied by having it cut by machinery, but the cost of this would be quite out of proportion to the number of instruments required, and the liability to errors in reading which I have previously indicated to be present in the original instrument would still remain. I was, however, so favourably impressed with the automatic idea, that I had made by way of an experiment an instrument in which the compass legs were prolonged beyond the points of measurement, and the graduated arc was placed at their extremities so as to give a reading on the arc equal in length to 1.5 millimetres for every millimetre indicated at the measuring points, and so make the instrument more sensitive. The experimental instrument was not a success, however, as it was too large and clumsy for practical use, although satisfactory as regards reading the measurement taken by it.

The competency with which the metric descriptions are taken is a crucial point in connection with the metric system of identification. Unless the measurements are well and accurately taken it is inevitable that the system must break down, however well organised it may otherwise be. The training of officers in the work is therefore most important, and has been entirely done by myself. To train a few and then let them teach others at the respective prisons to which they are attached would be to court failure, as the work requires to be done with far too much exactitude to permit of such an arrangement being successful. The plan adopted has been to form a school of instruction at one of the London prisons, and bring officers from the various metropolitan and provincial prisons to it for instruction. The classes are composed of from 14 to 18 officers selected chiefly from the rank of assistant warders as young men of intelligence and good promise in the prison service. The size of each class is fixed at the limits stated, as being the number of pupils to whose instruction experience has shown me I can give the personal attention they require to produce the best results. The course of class instruction they receive lasts for three hours per day for a fortnight, and is entirely practical with the exception of that given on two days, when the general principles of the system, the use of the instruments and the method of taking measurements, marks and finger-prints, are explained. The rest of the time they are drilled till they are conversant with the various branches of the work, after which they have each to pass a test examination on 18 cases. Anything over a difference of 1 millimetre in the head length and breadth, the face-breadth and

the finger-length, of 3 millimetres in the cubit and foot lengths, and of half an inch in the height, is counted as an error. That is to say, any deviation from the exact size of the part of more than $\pm .5$ mm. in the first four measurements, of ± 1.5 in the cubit and foot, and of $\pm \frac{1}{4}$ of an inch in the height are counted as errors. The maximum number of errors a candidate may have and yet pass the test is 18, on any greater number than that he is rejected as a measurer. After the officer returns to the prison to which he is attached, he has to do a certain number of metric descriptions for practice so that he may gain proficiency in his work, and when he begins to take descriptions which are to be registered for permanent record, he is set to work in conjunction with a more experienced officer than himself.

The number of male officers attached to each prison who have been qualified for the work of taking the metric descriptions and are engaged in doing it, is not less than two nor more than four according to the size of the prison. The total number of male officers required for the metric service in the prisons of England and Wales is about 150. Besides these, at the larger prisons, a certain number of female officers have been instructed in the work for taking the metric descriptions of female prisoners. They go through exactly the same course of training as the male officers, and the work they do is thoroughly satisfactory. At the smaller prisons, the measurements and finger-prints of female prisoners are taken by male officers, while the marks are taken by female officers who have gone through a course of instruction in this part of the work only. Altogether the metric staff in the prison service numbers about 200 male and female officers distributed over 60 different centres, only four of which are situated in the metropolis.

It will be obvious that unless some supervision be exercised over the work of so large a staff, spread over the whole country, their measurements would soon degenerate in accuracy, and show variations much greater than the standard, previously indicated, required for class work. Apart from actual errors some of the staff will come to take the measurements more tightly than they should be taken, while others will diverge in the opposite direction and take them too loosely. That all the staff shall continue to work accurately and with the same touch is most essential for the success of the metric system of identification. Provision for this all-important detail has therefore to be made. As taking metric descriptions is decidedly technical work requiring special knowledge, it cannot be expected of the governors of prisons to be able to supervise it at their respective prisons. It is essentially the province of the instructor or some person specially skilled in anthropometric work to do so. I have accordingly done it hitherto myself. For this purpose I have each year visited the prisons and made each member of the measuring staff take the metric descriptions of two, three, or more prisoners, independently, before me, after which I have tested their work. Defects in method or accuracy thus brought to light are pointed out and forthwith rectified. Whenever an officer is found to have any difficulties, these are explained, and if his work is bad he is stopped altogether from taking any more descriptions in future or at least until he has again become efficient by attending

TABLE I.—RESULT OF REMEASUREMENTS DURING 1897.

Measurements.	0 mm.	1 mm.	2 mm.	3 mm.	4 mm.	5 mm.	6 mm.	Total cases.
Head length	274	204	64	11	3	—	—	556
Head breadth ...	262	229	52	13	—	—	—	556
Face breadth	260	224	65	6	1	—	—	556
L. mid finger	240	220	80	16	—	—	—	556
Left cubit	208	178	119	35	7	6	3	556
Left foot	221	170	84	57	17	7	—	556

ABOVE RESULTS STATED IN PERCENTAGE.

Head length	49.3	36.7	11.5	2.0	.5	—	—	100
Head breadth	47.1	41.2	9.4	2.3	—	—	—	100
Face breadth	46.7	40.3	11.7	1.1	.2	—	—	100
L. mid finger	43.2	39.6	14.4	2.8	—	—	—	100
Left cubit	37.4	32.0	21.4	6.3	1.3	1.1	.5	100
Left foot	39.8	30.6	15.1	10.2	3.0	1.3	—	100

TABLE II.—AMOUNT OF VARIATION PER CENT.

	Nominally correct.	Error.			Total error.	Nominally correct.	Error.
		1st deg.	2nd deg.	3rd deg.			
Head length	86.0	11.5	2.0	.5	14.0	—	—
Head breadth	88.3	9.4	2.3	—	11.7	—	—
Face breadth	87.0	11.7	1.1	.2	13.0	—	—
L. mid finger	82.8	14.4	2.8	—	17.2	—	—
Left cubit	97.1	1.3	1.1	.5	2.9	90.8	9.2
Left foot....	95.7	3.0	1.3	—	4.3	85.5	14.5

another class of instruction for a longer or shorter period. Besides this, a close watch is kept at the Central Office on all metric descriptions of prisoners of whom there are previous records, and the earlier measurements are compared with the later ones, to ascertain how they agree, and if the latter disagree in any particulars beyond the limits already mentioned the form is sent back to be checked and have any error, if error there be in it, rectified. The tables on p. 178 show the degree of accuracy and of error which was found in the descriptions received at the Central Office during 1897, of prisoners of whom previous metric descriptions had been registered there.

The first column of the upper half of Table I gives the exact number of cases in which each of the several measurements agreed entirely with those previously recorded of the same individual taken in almost every case by different measurers and in different prisons. The number of instances in which there was a variation of one millimetre is shown in the second column, of two millimetres in the third column and so on till the variations are exhausted. In the lower half of the same table these figures have been reduced to percentage. As the exact dimension of any part of the body measured may lie half-way between one millimetre and the next, and as no account is taken of fractions or decimals of a millimetre, that is to say, they are not recorded, it necessarily follows that the tighter or slacker measurement will be entered according to whether the higher or lower millimetre is, in the judgment of the measurer, the more nearly correct; hence a plus or minus variation of $\cdot 5$ of a millimetre, equal to one millimetre, is permitted by M. Bertillon as nominally correct in the head length and breadth and in the length of the left middle finger. He has provisionally given the permissible error of the face breadth as \pm one millimetre, that is equal to a variation of two millimetres. I, however, consider that this dimension can be measured quite as exactly as the other three mentioned parts, and have therefore allowed a variation of only one millimetre for it (equal to $\pm \cdot 5$ millimetre) as permitted in them. The results shown in the tables bear out, I think, the correctness of my contention, although I am quite aware of the fact that occasionally a case occurs in practice where the face is somewhat fleshy, or more correctly speaking fat, in which it is difficult to measure exactly and where a variation of two millimetres might be permissible without error; but these instances are quite exceptional. The cubit and foot cannot be measured so exactly as the head, hence M. Bertillon allows a permissible \pm error of 1.5 millimetres giving a variation of three millimetres. I have accepted his limits of permissible error in the cubit and foot, but I think that it is rather a liberal allowance, particularly as compared to what is permitted in the other measurements. A variation of two millimetres in the former would be more in keeping with that permitted in the latter, as will be seen from the last two columns of Table II. In Table I a thick black line has been inserted to separate the nominally correct from the actual error in the several measurements, and after the two millimetres variation of the cubit and foot I have shown by a broken line where error may reasonably be considered to begin if the same

strictness is followed respecting these measurements as is done with the previous ones. But the question may also be raised on the results of this table whether a variation of one millimetre is not too strict for the head and finger measurements. If M. Bertillon's idea be correct that two millimetres variation is the nearest we can reasonably expect to arrive at in relation to the face breadth, then I think it follows that a variation for the head length and breadth and the finger length is rather too strict. On the whole, I am inclined to consider that a variation of one millimetre in the first four measurements and of two millimetres in the last two is a good standard of nominal correctness and that above these limits preventable error begins.

The higher percentage in error in the measurement of the foot revealed in this table has led me to modify somewhat the procedure M. Bertillon gives in measuring it, or rather to make a slight preliminary addition to his method of procedure. Those who are familiar with his plan will recollect that he directs the prisoner to place his foot on the measuring stool, and stand with the whole weight of the body on the left foot while the measurement is being taken, the left knee being meanwhile bent somewhat, the right limb suspended in mid-air and the body steadied by the right hand being rested on a handle attached to the trestle table. In young persons there is usually not much difficulty in balancing the body and keeping the left foot steady enough for the measurement to be taken with sufficient accuracy, but in middle-aged and elderly persons and in cases where the limbs have been affected by rheumatism or other malady it is not always possible for the prisoner to keep himself steadily balanced on one foot in the position indicated while its measurement is being taken. The preliminary procedure I have introduced is to make the prisoner place his left foot on the stool and bend the left knee till the front of it is vertically above the distal end of the great toe, the heel meanwhile resting firmly on the stool and the right foot on the floor. While in this position with the weight of the body supported by both limbs the left foot is measured and its size noted. After this has been done the left foot is then measured by the ordinary procedure of M. Bertillon, the result noted and compared with the former measurement obtained. The size of the foot should be greater when the whole weight of the body is resting upon it in M. Bertillon's method, but if the measurement first taken while the prisoner was standing with his weight supported by both feet is the greater, the measurer has a sure indication that he has not succeeded in getting the maximum length of the foot by the regular method, and that it must be taken again till he gets it properly. By the preliminary measurement he gains the important information that the length of the foot is not less than a certain figure by which he can check error in his regular measurement. Since I have introduced this procedure I have found that the number of errors made in measuring the foot by pupils while receiving class instruction has been diminished, and I trust that by its adoption as an ordinary routine in practice greater accuracy in the foot measurement is being obtained in the metric descriptions now being received.

The grosser errors shown by the tables are almost entirely due to mis-reading of the instrument, the measurement of the part having been accurately taken or with only a minor degree of error. This is clearly due to carelessness, and may I hope become less as the officers gain greater experience in the work.

The nett result shown by the tables is that the error in taking the six measurements amounts to 10·6 per cent. This is, on the whole, I consider, very satisfactory, seeing that in several prisons the officers had not had much experience in the work, and that most of the previous measurements with which the later ones were compared were taken by officers who were first instructed in the system and were generally older men than those who are now employed on the work. My experience as an instructor has been that the instruments are much more efficiently handled by younger men than by the older officers, there are, of course, a few exceptions in favour of the latter to this general rule. In younger men the joints of the arms and hands are much more supple, and dexterity in the use of the instruments comes much more easily than when the work is taken up for the first time during middle life. This is especially noticeable when drilling men in the method of measuring the head length, which is to the inexperienced perhaps the most difficult of all the measurements to take correctly, in consequence of the point of one arm of the calipers having to be held steadily against the root of the nose while the other limb is being moved up and down on the back of the head searching for its most prominent part.

The prisoners whose metric descriptions are taken in prison before their discharge for registration at the Central Metric Office are (*a*) those who have been sentenced to penal servitude; (*b*) those who have been sentenced to a term of imprisonment to be followed by a term of police supervision after their release; and (*c*) those who have been sentenced to a term of imprisonment after conviction on indictment of crime, previous conviction of crime having been proved against them at the trial. In other words those persons who come under (*a*) the 5th; (*b*) the 8th; and (*c*) the 7th sections of the Prevention of Crimes Act. Besides those whose descriptions are registered as a matter of course, the registrar may register the metric description of any other convicted criminal prisoner who, to the best of his judgment, has probably embarked on a life of crime, and regarding whom information may probably be wanted subsequently by the police.

We have now to consider how the metric descriptions of the above prisoners are disposed after they have been received at the Central Office. To accumulate records of any kind is of little use unless they be so arranged as make it possible to refer to any one individual record whenever it is wanted. This is the great merit of the system with which the name of Bertillon is so honourably connected, and which places it before all other systems in that respect. Once the record sought for has been found, identity can be proved or disproved perhaps with greater certainty by other means than by the measurements.

The metric form has a serial number for each year impressed upon it, and is stored according to that number in an ordinary drawer, a card index, arranged

alphabetically according to prisoner's names, whereon is inscribed their register number, is also made for easy reference and kept till the end of each year, when a name index is compiled from it and printed of all persons registered during the year. Thus if a person when subsequently arrested gives the same name his metric form can at once be found by the card index, or if the year he was discharged from prison and his register number is known one can go directly to the metric form.

The metric card, after having the same serial number impressed upon it as the form and any other papers relating to the same individual, is disposed of differently. It is placed in a Search Cabinet according to a specific classification by the measurements of the individual and can only be found by the measurements on the form or measurements of the same person taken subsequently.

SMALL.			MEDIUM.			LARGE.			
SMALL.	MEDIUM.	LARGE.	SMALL.	MEDIUM.	LARGE.	SMALL.	MEDIUM.	LARGE.	
LARGE.	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18
	19	20	21	22	23	24	25	26	27
MEDIUM.	28	29	30	31	32	33	34	35	36
	37	38	39	40	41	42	43	44	45
	46	47	48	49	50	51	52	53	54
SMALL.	55	56	57	58	59	60	61	62	63
	64	65	66	67	68	69	70	71	72
	73	74	75	76	77	78	79	80	81

The construction of the Search Cabinet is as follows:—By two vertical partitions of thicker material than those which separate the individual drawers, it is divided into three main divisions each containing twenty-seven drawers; each of these main divisions is again sub-divided by two horizontal partitions of the same thickness as the vertical ones into three sub-divisions consisting of nine drawers in each. Again each of these three sub-divisions is further sub-divided first vertically and then horizontally on the same plan by thinner partitions into sets of three drawers. The cabinet is thus divided into eighty-one drawers. A final sub-division is made by inserting two partitions in each drawer and so dividing it into three compartments. There are thus five grades of divisions of the cabinet; each grade

bears a certain relation to each of the first five measurements on the metric card. Just as a tripartite system of division exists in the cabinet, so a tripartite division of each of these measurements is followed according as it is large, medium, or small. First then all cards in which the head length is small are assigned to one or other of the twenty-seven drawers of the left third of the cabinet, those in which the head length is large are disposed of in the twenty-seven drawers in the right third, while those of medium head length go into the middle third. The limits which determine under which of the categories a card falls, are fixed so as to give to each third of the cabinet an approximately equal number of cards namely, one-third of the total number it contains. Having determined to which of the three main divisions of the cabinet a card is to be assigned by the head length, we next take the head breadth. If this measurement be small the card will be placed in one of the lowest sets of nine drawers, if large it goes into one of the top sets of nine drawers, and if medium in one of the nine drawers of the middle three sets. The limits of *small*, *medium*, and *large* as regards the head breadth, are not the same for each of the three main divisions of the cabinet but are fixed in relation to the head length. That is to say, the short heads are divided up into three equal groups of *small*, *medium*, and *large* as regards their breadth, quite irrespectively of the breadth of head in the other two divisions. The same procedure is followed with each of the other two groups in turn.

Dealing now with each set of nine drawers. The face breadth is brought into use to determine to which vertical row of three drawers the card belongs. The row to the left contains the cards of small face breadth, that to the right those of large face breadth, while those of medium face breadth are in the middle three drawers. The limits of the three divisions of face breadth in each set of nine drawers are fixed on the same principle as before, according to the head breadth and have to be determined for each of the sets of nine drawers independently. By the length of the left middle finger which is classified into *small*, *medium*, and *large* for each division of face breadth, the drawer into which the card is placed is arrived at. If the finger be short the card goes into the lowest drawer of the vertical row of three drawers, if of medium length into the middle, and if long into the top drawer. Finally, the cubit lengths indicated on the cards assigned to each drawer being divided into three degrees of sizes, *short*, *medium*, and *large*, determines what cards are to be placed respectively in the front, middle or back sub-division of the drawer.

According to this plan of construction of the cabinet each measurement employed in classification gives three-fold powers of classifying records, and the range of variation of each portion of the body measured is divided with great exactitude into three degrees of size in relation to the size of the previous part, beginning with the head length. That measurement, which is the first, gives 3 classes, the second measurement breaks each of these in 3, giving 9 classes, the third measurement divides these 9 classes into 27, the fourth measurement divides the 27 classes into 81, the fifth measurement splits these 81 classes into

243, and so it goes on, each additional measurement taken multiplying the classification three times. By means of this system any number of records could in theory be divided up till the ultimate sub-division contains only such a number of cards as can be easily and quickly handled. In practice, however, there is only a certain limit to which this sub-division by using more measurements can be carried with advantage, in consequence of the variations which are liable to occur in measuring the parts used in classification when the same individual is measured at different times even though the work be done by the same measurer, and still more is this the case when different measurers are engaged on it, with the result that "double searches," already referred to at a previous part of this paper, become more frequently needed to find any particular record from another similar one.

The method by which the limits of the various groups are determined has now to be considered, but before doing so it is desirable to point out some of the anthropological factors which produce the range of variation met with in the parts of the body measured for the purpose of obtaining the classification just explained. The absence of absolute similarity in morphological development, which occurs in all races of men, as in all animals, and is so important a factor in evolution, gives a certain range of variation in actual size to every part of the body, even in what are termed "pure races," that is to say, in communities which have for sufficiently long periods been isolated from their fellow-men to have acquired, in consequence, more or less similar morphological characteristics. The range of variation in such a community may be less marked than in people who have not been so isolated. In these so-called pure races, also, there is a greater tendency for one part of the body to bear a more or less constant relation to another; thus we find the cephalic index, which expresses the percentage relation that the breadth of the head bears to the length, varies comparatively little in such races. In mixed communities, the range of variation of parts is considerable, and the co-relation of one part to another though increased is but slight. The inhabitants of a country may be "mixed" in different ways. They will show mixed characters as a whole, if two or more so-called pure races, or races possessing definite characteristics of their own, are settled in different parts of the country, and the metric descriptions of a certain number of each race be collected and amalgamated, or if the different races have been blended together by crossing with one another through several generations. In this latter case the mixture would show itself not only by the different parts of the body acquiring a mean form or size between the two ethnical extremes crossed, but also by the reappearance of the peculiarities of each race in different parts of the body, often of the same individual. To pass from abstract statements like the preceding to the concrete by giving a practical illustration. Let us suppose that different parts of England were occupied by two races (although in fact it contains more than that number), and that one of these is characterised by being tall and having round heads, while the other race is short in stature with markedly oval or oblong heads, which for convenience we may term long heads on

account of the long narrow appearance they present. Metric statistics of each race sorted out separately would show more or less uniformity of character, but at the same time a degree of variation ranging above and below a certain centre which would be different for each of the races. On amalgamating these statistics there would be found to be a considerably greater range of variation in the actual measurements of stature and of head length and breadth than obtained in any one of the races taken separately, and indications of a mixed population would present themselves. Another form of mixture would be obtained if for centuries these two once more or less pure races had intermarried. Their descendants would show that in some cases the characteristics of each of the ancient races were maintained, in others that short stature was associated with a long head and short stature with a round head; an intermediate form of head, a mean between the round and the long, and middle-sized stature would also occur. In the same family even there might be found one member short, medium or tall with a head intermediate in form between the round and the long, another member tall with a long head, while a third was short and round-headed. This is precisely what has occurred in England, and we have at the present day all the combinations mentioned. In some parts of the country the long-headed short race are predominant, in other parts the tall round-headed race are more numerous, and in every part of the country there are modifications of the two races assuming the form of a compromise or of the old race characters of one race appearing in one part of the body, while other parts of the body of the same individual give evidences of characters derived from the other ancestral race. There have been also several subsequent introductions of other mixed ethnic stocks such as Saxon, Norse, Normans, French, Italians, Jews, Russians, and Teutons from various parts of the Continent. In the division of each measurement used in metric identification, a true balance must be struck between the various race elements in different parts of the country, the modifications caused by the admixture of these races in various proportions, and the frequency with which one or other of the special characteristics of each of the two early races reappear. The problem is a difficult one, and the balance might be upset at any moment and require readjustment by a marked increase of criminals from one or other part of the country, or by an increase of criminals possessing the characteristics special to one or other race, or of the resultant modification produced by admixture of races. The effects of town life and of certain kinds of employment in producing degeneracy are also elements of importance which must not be overlooked as causes liable to affect the balance. The divisions which have been arrived at are as far as possible the resultant of the various factors obtained from statistics received from all parts of the country, including large towns as well as rural districts.

From what has been just stated it will be evident that it was impossible to utilise the labours of other workers in the field of metric identification by adopting their schemes of classification and applying them to our records. For example, it was useless to attempt working with the various limits which have

been found applicable to the metric descriptions of criminals in France, the ethnological composition of the inhabitants of that country being different from that of England in the proportions of the admixtures which have taken place through past ages. Nor do I think it likely that the various limits which have been assigned to the sub-divisions in England would in all respects hold good in the case of a metric bureau being established either in Scotland or Ireland, or even for the north or the south of England itself.

I have already stated that in a mixed population such as we have to deal with in England the correlation between the different measurements used for the classification of criminal records is slight. Still it is present to some extent, and has to be provided for in fixing the limits of the different groups so as to obtain equal distribution of the records in the various divisions and sub-divisions of the cabinet, which is a matter of considerable importance. By correlation between the different measurements I mean the tendency for a person of large size to have the various parts of his body large and conversely for a small man to be of small dimensions throughout his organism. This does not hold good universally, as it is well known that a man of small size may have a large head or he may be small in one of his head measurements and large in another. Inherited racial characteristics in some respects modify this tendency to correlation in a mixed mass of metrical statistics, and so assist in reducing it to the proportions in which it exists.

When we take a sufficiently large number of measurements of any part of the body whether it be of stature, head length or any other dimension, and plot the individual measurements out on paper ruled horizontally and vertically so as to form small squares each one millimetre in diameter, we find that they form an outline diagram in the shape of a curve or polygon more or less peaked to which the name of *Frequency curve* is applied, and which may be dealt with by mathematical theory. The most frequently occurring size will form the highest point or apex of the curve, and from this the outline will more or less rapidly or slowly recede till the maximum degree of divergence on either side of the mean is reached, according as the range of variation in the dimension under examination is small or great.

If the individual elements used in the formation of this frequency curve be homogeneous the curve will appear to be simple and regular in outline, and it would be a matter of no great difficulty to so divide the sum of the elements entering into its formation at each millimetre of its extent into what, for purposes of our classification, would be three equal groups, or at least near enough to be considered equal groups. The fact that the frequency curve is not always homogeneous has been noted by Bertillon and others and mathematical methods of analysing it given by Professor Karl Pearson, where two elements occur in its composition. In a mixed population such as I have shown we have to deal with in England, and in which there are various kinds of mixtures and other influencing factors, the frequency curve of any measurement often shows its composite character by irregularities of outline; especially is this the case when the metrical statistics of

which it is composed are not very numerous. The predominance or the reverse of any one or other of the various ethnical factors previously mentioned at the time the data are being dealt with, and at other times, introduces an element of uncertainty which must be provided for as far as possible, so as to prevent the necessity of having always to be modifying and altering the limits of the various groups. The probable error has therefore to be calculated and irregularities in the curves allowed for. I need not here go into the details of the various mathematical proceedings by which the several factors involved may be dealt with to obtain the desired result. I may, however, remark that an attempt was made, in the first instance, to fix the limits of the divisions directly without applying any of these mathematical processes, beyond that of sorting out the records into three equal groups, and then proceeding to deal with the divisions so arrived at by the next measurements and so on; but it proved a failure, and more scientific though more intricate means had to be resorted to which have given much more satisfactory results. The first of these tried was that of working upon the lines applied by Mr. Francis Galton to his laboratory statistics, which, at various times, he has brought before this Institute for determining the mean between different percentiles, probable errors and the like. I found as regards the first, that it was not quite exact enough for the purposes of these divisions, as by the formula he uses, viz., $\frac{1}{2}(Q_3 - Q_1) + Q_1 = M$ or Q_2 , it is assumed that from the two first mentioned quartiles, the value of any one or both of which may be subject to a plus or minus variation, better data for fixing Q_2 are obtained than from the observed Q_2 . More satisfactory results were obtained by the use of Professor Edgeworth's modification of this formula, whereby the influence of all three quartiles are called into action in determining the mean value of Q_2 . This may be shortly stated by the formula, $\frac{2Q_2 - Q_1 + Q_3}{3.2}$, or $\frac{Q_1 + Q_3 - 2Q_2}{3.2}$, as the one or other factor is the larger. I am, however, indebted to the various publications of Professor Karl Pearson for much valuable assistance in this work. The practical outcome has been that for the purposes of primary classification, I have now got limits which I think are fairly reliable, determined for the first four measurements on the metric form and card, and those of the fifth measurement—the cubit—provisionally arranged. Progress has also been made towards secondary classification, as I have also got certain subdivisions by some of the finger impressions in process of being worked out; as, however, these latter are still in the experimental stage I do not, as I stated at an earlier period, intend to discuss them on this occasion, but will content myself with mentioning that they are intended to take the place of the secondary measurements, colour of eyes, etc., used by M. Bertillon as a subsidiary means of classification of the French metric records.

The description of the arrangement of the metric records in the metric cabinet just given applies only to those of males who have reached adult size. The metric descriptions of women are separately dealt with. Being comparatively few in number as compared to the records of males, one cabinet with twenty-seven

drawers has been ample for their accommodation. The same plan of sub-division has been adopted for this cabinet as for that of the males, but fewer measurements have been requisitioned for the purpose of primary classification, and different limits fixed for the several classes.

The metric descriptions of growing youths up to twenty years of age are dealt with separately from the records of adults, and for the classification of the former finger impressions only have been employed as recommended by the Committee in their report, it being obvious that earlier records would in many instances be missed if search for them were made from metric descriptions taken a year or even less subsequently, in consequence of the growth during the interval of the parts measured.

The system of recording the metric descriptions of prisoners used in England differs from that of the French system, which has been adopted by the continental nations of Europe, chiefly in particulars of secondary importance. If a metric description be sent to the Central Office here from France, Germany, Austria, or any of the other countries which has adopted the metric system of identification for its criminals, search can be made for the prisoner by it, because all the information required for search by our system is contained on such foreign metric card. If on the other hand the metric description of any person arrested or in prison in England is applied for by a continental nation or we desire to have search made for him in some continental metric bureau, I am able to get the various additional particulars and measurements taken in our prisons which are required by the Identification Bureau so applying or applied to for information to enable search to be made for the prisoner by the Bertillon system.

Hitherto I have dealt with the processes of recording and classifying metric descriptions so as to form a register which will enable us to lay our hands upon any particular record contained therein with the minimum amount of labour and in the shortest possible time. We have now to consider how this metric register is to be used in order to realise the main object for which it has been established, namely, the identification of criminals. In doing so I have first to describe what steps have to be taken by Police Forces throughout the country, desirous of obtaining information as to the criminal history of anyone it may contain, and secondly, what has to be done by the staff of the Metric Office when a request for information regarding any person thought likely to be registered in the Central Office, is received.

When a person is arrested on a charge of having committed an offence and he is unknown to the police by whom he is arrested, it is usual to ask the magistrate before whom he is brought in the first instance to remand him to enable inquiries to be made regarding him, or the magistrate may of his own initiative remand the prisoner for that purpose. If the magistrate grants the application for a remand or himself remands the prisoner, the following blank form, which has been approved of for the purpose by the Home Secretary, is filled up by the police in charge of the case, asking for the metric description of the prisoner to be taken

by the governor of the prison in which he is kept during the time for which he is remanded.

The Chief Constable of _____
hereby makes application that the measurements, description, finger
impressions and photograph of _____

charged at _____
with _____
and remanded till _____
shall be taken and forwarded to the Registrar of Habitual Criminals,
New Scotland Yard, London, for the purpose of obtaining information
as to his antecedents, as in consequence of the nature of the offence
with which ...he is charged, there are grounds for suspecting that ...he
has been previously convicted, or has been engaged in crime.

*

Approved.

J.P.

Signed _____

Rank _____

day of _____ 189

To The Governor,

H.M. Prison ...

N.B.—The Officer of Police signing this application must be of not lower
rank than Superintendent.

* Other reasons, if any, to be here stated.

This form is submitted to the magistrate or to a Justice of the Peace for his approval. If he approves of the metric description of the prisoner being taken, he signs the form, and it is forwarded with the commitment warrant and the prisoner, or subsequently, to the Governor of the prison. In the metropolis the approval of the Commissioner of Police or of an Assistant Commissioner is sufficient, they being *ex officio* Justices of the Peace. With the delivery to the prison officials of the form bearing the magistrate's approval the duty of the police ends, till a reply has been received from the Metric Office. The Governor of the prison has forthwith, on the receipt of the prisoner and the application, to have the metric description and photograph of the prisoner taken and forwarded to the Metric Office for search. This may seem a somewhat long and roundabout procedure, but were the various circumstances which led to its adoption taken into account, I think it would be regarded in a more favourable light than it appears in at first sight. The question may naturally be asked, Why do not the police take the measurements of a prisoner on his arrest? The Governor of a prison is the only one who is authorised by Act of Parliament to measure and photograph a prisoner. To extend the power to the Police Forces we would have had to wait for an Act empowering them to do so, to be passed before the system could have been introduced. Again, supposing such an Act to have been passed, there are

in England and Wales no less than about 200 Police Forces independent of each other, for each of which, at least, two measuring officers would have had to be trained, and in several forces four to six officers would be required, so that the total staff to be trained and looked after would have amounted to from 500 to 600, a number which it would almost be impossible to keep efficient at the work.

On receipt of the application and metric description at the Metric Office the pattern of the finger impressions have to be deciphered and noted on the metric form in the space assigned on it for the finger formula, likewise the measurement formula is made out and noted on it from a key to the cabinet, containing the limits of the different divisions and sub-divisions. By this means the exact drawer, and sub-division of the drawer is arrived at where any previous record of the prisoner should be, if there be a previous record of him. The searcher is thus able to go directly to the exact series of records, and turn over the few cards it contains till he finds the previous description of the prisoner. The time occupied in noting the measurement and finger formulæ, and searching for the previous record in ordinary cases occupies from three to five minutes. If no previous record be found of the prisoner in the set of cards indicated by the measurement and finger formulæ, the searcher has to see whether any of the measurements are close to one or other margin of the tripartite division of any measurement, and if so, repeat the search in the other division or divisions in which it might be before he can say that no previous record of the prisoner exists in the cabinet, because on a previous occasion when the prisoner may have been measured, the measurer may have made the measurement of the part near the margin of the division tighter or slacker, as previously mentioned. The result of the search, whether it be positive or negative, is then forthwith communicated to the police force applying for the information regarding the prisoner, and if a previous record be found, the list of previous convictions recorded against him are forwarded with the answer. Unless the measurements be bad, which they seldom are to the extent of making the search ineffectual, it so rarely happens for a prisoner to be missed on careful search being made, that it may be accepted when a previous record of him is not found, that he has not been liberated from prison on the expiration of a sentence of imprisonment for serious crime during the time the metric system of identification has been in force, which of itself is strong evidence in favour of his not being an habitual criminal.

The number of searches which have to be made before a prisoner is found is important in determining the usefulness of the system, the weak point of which, as I have previously mentioned, is the occurrence of marginal measurements requiring searches to be made in more than one division of the cabinet. Naturally, when a previous record is not found where the metric form indicates it should be, the searcher, desirous of making sure that there is really no previous record of the prisoner in the cabinet and so prevent his being "scored off," on it being subsequently discovered that such a record did exist and had been missed by him, is led to allow freely for possible errors of measurement.

It is therefore desirable to ascertain how far such multiple searches may be pushed with advantage and with what prospect of success.

The following table compiled from the number of searches made in cases where previous records were found and the prisoners identified as old offenders may be useful, though the percentages therein given are only put forward tentatively in consequence of being based upon too few data to be entirely reliable, but may be considered as it were the "first fruits" of the metric system in England.

Identifications made on—					
1 search	...	...	...	61.0	per cent.
2 searches	...	...	...	17.1	" "
3	"	...	...	11.0	" "
4	"	...	...	2.7	" "
5	"	...	...	3.6	" "
6	"	and upwards	...	4.6	" "

From the above table it will be seen that to find the previous records of about 90 per cent. of the prisoners already registered, not more than three searches were required, and of that percentage two-thirds were found on the first search; after the fifth search the number found rapidly decreases. No doubt by making so many searches the bad effects of errors in measurement have been counteracted, but as time goes on and the measuring staff becomes more expert at the work I hope better results may be looked for.

The first two-and-a-half years after the metric system was introduced were occupied in training a staff of measurers for the various prisons, and in recording metric descriptions of prisoners before their discharge from prison. It was not until about 6,000 descriptions had been classified in the metric cabinet that the actual work of making identifications by means of the system was begun and then but gradually. I have therefore only the results of three years to show and compare with those obtained under the old system. Starting with only a small proportion of records as compared to the number of criminals, and of criminal records on which the Metropolitan Police had to draw for their identifications, and there being still not more than 18,000 metric descriptions classified in the cabinets, it will be obvious that the best numerical results obtainable by the metric system have not nearly been reached yet. The percentage of identifications by this system has, however, shown a steady increase from the beginning, and I feel sure that as the descriptions of the criminal population are obtained and classified, this increase will continue in the number of identifications effected by means of it. The results obtained during the last three years from the beginning of June, 1897, to the end of May, 1900, show that of the total number of applications received at the Metric Office requesting information as to the antecedents of prisoners and accompanied by metric descriptions, exactly 30 per cent. were identified as former offenders. In many cases I have reason to know that the metric system was only resorted to after other means of discovering the

identity of these persons (numbering in all over 2,000) had failed. The mere number of identifications made by the metric system is but a single factor in estimating its value, and the large amount of time that has been saved to the Police Forces who have used it is equally important. The officers who would have been detailed to make investigations under the old system have been employed at other work, and the identifications have been made with a certainty and accuracy which under the old system were wanting, and most probably in many instances where no connection with previous convictions would have been traced.

Turning to the Report of the Committee for 1894 once more, I find a valuable table of statistics of the search forms received and the identifications made from the records at the Headquarters of the Metropolitan Police during the years 1891, 1892 and 1893, under the old system of identification. By adding together the searches received from the various Divisions of that Police Force and the route-inquiry forms received by it from Provincial Police Forces during these years, we have a total number of 23,110 searches; adding the identifications made from records during the same years, we find they amount to 3,922, which gives a percentage of almost 17·0 identifications from the previously mentioned number of searches.

Comparing the results of the searches made by the metric system with the above made under the old system together, we have the following result:—

Identifications by metric system	30·0 per cent.
„ from records by the old system	17·0 „ „
Increase of identifications by metric system ...	13·0 „ „

As regards the time taken in searching by the old system, I find a significant note under the table referred to which is as follows:—“On the 1st day of March, 1893, 21 officers attended to search for 27 prisoners, taking in all 57½ hours to search; resulting in 7 identifications.” Giving a liberal allowance of time for searching by the metric system the same work could be done by one officer in four hours.

The benefit to be derived from the use of the metric system to Police Forces in aiding them in their work of identifying criminals has not yet been fully realised except by a few Forces. As it becomes better known I have no doubt it will become much more extensively employed than hitherto, and the reliability which can be placed on the identifications made by means of it will be appreciated not only by the Police Forces of the country, but also by those who have to administer the law, in the persons of magistrates and the judges of the higher courts. The state of organisation of the system is such as to enable any increased demands which may be made upon it to be met with ease. Sufficient proof of its utility has already been forthcoming to show that it has passed successfully through the experimental stage, and that it is capable of fulfilling all that may be required of it in future, provided that it is carried on with due regard to the scientific bases on which it depends for its

existence. But it is necessary to emphasise this proviso. The metric system of identification is not like a machine such as a steam engine or a watch which will work satisfactorily on being supplied with the motive force it requires under the hands of those not skilled in its construction. In other words it cannot be carried on successfully as an ordinary branch of a government or police office. To be successful it must ever be considered and treated as a scientific laboratory to be carried on under the immediate supervision and personal direction of a scientific expert at the work, one who has a good knowledge of human morphology and also of mathematics as applied to statistics, and medical jurisprudence. There is no finality in the arrangements of any part of the system; modifications and improvements must ever take place if it is to progress and keep up with the calls upon it. I have heard the complaint made that M. Bertillon was ever making changes and alterations in the arrangements of the Paris Anthropometrical Bureau. This instead of being a ground of complaint is a sign that the system there is being maintained in an efficient condition. In this country the need of expert direction is still more necessary than in Paris, seeing that here none of the work of measuring prisoners is done at the Central Office whereas in Paris a great part of it is done under M. Bertillon's own eye. Here the work of the measuring staff at the Prisons and of the searching staff at the Central Office though entirely separate has to be kept in harmonious touch the one with the other. The disregard of scientific direction has proved disastrous to the success of the metric system of identification in some countries where it has been started and carried on for a time by police officers who have had only a little instruction in it, and cannot be expected to be proficient in the sciences on which it is based. I have been constrained to dwell upon these points because of the apparent simplicity and ease with which the practical results of the system seem to be obtained to those who are not versed in the underlying principles and work upon which the practical results depend, and which if not attended to must inevitably cause it to break down. I have no hesitation in stating that unless adequate provision is made for carrying it on in the way which is essential to its very existence, it is far better not to attempt identification by this system. Inquirers have sometimes said to me, "We do not want the scientific part of the system, only show us how it is to be worked in practice." My reply is, "You may as well try to play *Hamlet* without anyone to take the part of Prince of Denmark, as to attempt to do without the scientific part of the system." But I do not wish it to be inferred from anything I have just said that there are inherent difficulties in administering this system. All I mean to state is that adequate knowledge of and training in the sciences on which it is founded are essential to carry out the system satisfactorily. No one would think of entrusting the medical or surgical treatment of the patients in a hospital to the civil governor and his clerks, however capable he might be in his own sphere. By a person possessing the necessary knowledge the metric system of identification can be as easily directed, and the various contingencies which occur provided for, as the work

of a physiological laboratory can be directed by a physiologist, or as a chemist can direct his laboratory. The metric laboratory has the advantage that it only requires the head of it to possess scientific knowledge, the actual work of it can be well carried out by prison and police officers, after a certain amount of training, under his direction.

If in the future the metric system be conducted in this country on the lines I have indicated, which are those on which it was started, I have no hesitation in predicting that its progress in the future will be thoroughly satisfactory, and that it will realise the utmost expectations of the Committee which recommended its adoption.

DISCUSSION.

Mr. D. MACIVER said:—Dr. Garson, in his capacity as scientific expert at Scotland Yard, is trying by means of anthropometry to discover the differences which characterise individuals, but when he writes the instructions in *Notes and Queries on Anthropology* he is describing measurements which aim at eliminating individual variations and obtaining the characteristics of race. Obviously, therefore, it might be expected that different points of measurement would be selected for the attainment of diametrically different ends. But to our surprise we find that it is precisely the measurements employed by the ethnologist, *e.g.*, head-length, head-breadth, face-breadth, which figure in the forefront of Dr. Garson's list of prison measurements. There is therefore a dilemma. The measurements referred to must either show racial characteristics and be of use to the ethnologist, or they must show individual peculiarities and therefore be of value to the prison expert. They certainly cannot do both at once.

Colonel GARSIA said:—The system of identification explained by Dr. Garson has recommended itself to me by reason of its being based on something approaching to certainty, for in my long experience in connection with criminals I have realised the uncertainty of the former system, which was based entirely on recollection by a prison officer or policeman of the features of a criminal. How unreliable was that system of identification may be gathered when I mention how on one occasion I complimented an old and trusted prison officer on his memory, which enabled him, as sessions officer, to identify as old criminals persons he had not seen for a great number of years, to which he replied, "Sir, I swear to what the police tells me; they know best." I was completely converted to the system of identification by measurements when, as Dr. Garson has mentioned, the release of an innocent person, shortly after the system was introduced in England, was brought about by it. That was the case of a prisoner in Reading Prison who had been tried and convicted of a fraud said to have been committed by him some months before his arrest. The accused had been duly identified as the thief and an old criminal. He petitioned, after being sentenced, declaring that he was not the thief, and that it was mistaken identity, as he was in prison in France when the fraud was committed. The measurements and other particulars of the person he represented himself to be were then applied for and obtained from Monsieur Bertillon in Paris, and they proved to be identical in every particular with the prisoner's measurements taken at Reading, and the truth of the prisoner's statement being so fully

established, he was released. Not being a scientist, I do not attempt to criticise the science of the system of measurement and finger-prints so ably explained by Dr. Garson. I can only say, I so thoroughly believe in the system that I have recommended the Secretary of State for War to adopt it for preventing fraudulent enlistment in the army, and for checking desertion. I have recommended that every person discharged from the army for any cause, except on termination of engagement, and every returned deserter, shall be so measured, and a register similar to the criminal register be kept, and on a doubtful person offering to enlist he shall be measured and his measurement be checked before he is attested. I believe such a system would be a much more effective way of stopping desertion and fraudulent enlistment than imprisonment. The system is still, I think, in its infancy; but it seems to me far better than that in use in France and other countries, seeing that it is a combination of the methods of Monsieur Bertillon and Mr. Francis Galton, and I feel that we are much indebted to Dr. Garson for the instructive and interesting address he has given us.

Major E. G. CLAYTON said he could only endorse all that Colonel Garsia had said concerning the advantages the present system of identification possesses over the old system; these advantages he considered to be undeniable.

Mr. GALTON said he had not experienced the difficulty that Dr. Garson mentioned in the consistent classification of intermediate forms of finger-print patterns. There were not many of them, and a small standard collection sufficed for reference. The essential point was that the doubtful cases should be decided at first with scrupulous care, and in strict accordance with the standards; then, after a short time, a right decision would be rapidly formed. Neither could he think that much difficulty need arise from a refractory prisoner. It did not seem to require great ingenuity to contrive an arrangement which might be a sort of gauntlet with finger-stalls, and which, without brutal treatment, should prevent the flexure of the hand and yet leave the bulbs of the fingers exposed. The method of measurement was unfortunately impracticable in some of the countries where identification was often called for. In India it had been tried and then entirely suppressed, because it was found impossible to exercise that constant supervision over widely distant stations which was needed to ensure the measurers doing their work accurately. Between 150,000 and 200,000 cards referring to as many criminals had been quite recently done away with, and cards of finger-prints are being substituted for them as fast as possible. He regretted that Mr. Henry, under whose administration this great change had been effected, was not present at the meeting to relate his experiences, which were entirely favourable to the finger-print method. On the other hand, he (Mr. Galton) felt surprised that the power of that method was as great as Mr. Henry found it to be. There was one very common pattern, that in which every finger showed an ulnar loop, 6 out of every 100 sets being of this kind. Consequently in a collection of 200,000 sets there would be no less than 12,000 of these, yet Mr. Henry seemed to use no method for sub-classifying them that differed in principle from those he (Mr. Galton) had employed. He wished to refer briefly to a visit recently made by himself to the Bureau of Identification at Cairo, organised within the last three years by Colonel Harvey Pasha. It was carried on in strict accordance with the recommendations of the Committee of which Dr. Garson had spoken, and it seemed to him as well

managed as could be. The difficulty arising from all measurements in the same individual tending to be alike large, if one of them was, or conversely, all small if one was small, had been ingeniously overcome by one of the officials entirely by himself, the number of cards, or rather papers, in each of the drawers being now nearly the same. The rapidity was surprising with which cards were hunted out from the collection in Cairo of between 18,000 and 19,000 of them, referring to as many different male adults. The women were dealt with by finger-prints alone, there being social prejudices in the past that interfere with their measurement. Similarly as regards minors, for it is obviously of no use to measure a growing boy.

He thought that every separate Identification Bureau would be likely to have something to teach to the rest, and much to learn from them, and he looked forward to a time, perhaps some few years hence, when a conference of executive officers might properly meet to interchange views and arrange as far as might be for a similarity of method.

Sir JAMES CRICHTON-BROWNE said he had listened to Dr. Garson's paper with great interest, and with high appreciation of the ingenuity and labour that had been expended on the investigation it described. The system of identification which Dr. Garson had inaugurated in this country would have important practical results. Certainty of detection was much more deterrent in the case of crime than severity of punishment, and it was possible that some of the criminals subjected to this mysterious process would, on their discharge from prison, go and sin no more, convinced that an alias would no longer afford any protection. Then, the data collected, when classified and arranged, would throw light on some racial, social, and pathological questions, and would be of special value, when comparison was possible between them and similar data, referring to other classes in the community besides criminals. Sir James desired strongly to insist on the importance of what Dr. Garson had said, that observations of this kind could only be efficiently carried out under the immediate supervision of a scientific expert. No matter how well trained, or how painstaking the prison officers might be, they would require to be supervised and checked, from time to time, in making measurements in which the utmost exactitude was essential. He recalled some observations on weight, made on the patients of a large lunatic hospital of which he had charge twenty-five years ago. There were 1,500 patients, and they were weighed monthly with a view to the early detection of pulmonary consumption, the symptoms of which are often masked in the insane, so that it may advance far without detection. All patients who had lost more than three pounds in the month were reported to the medical officers for special physical examination. The weighing was carried out, not by ordinary nurses and attendants, but by special officers. Well, on one occasion the medical officers tested the monthly records, going over all the weighing themselves, and they found about 75 per cent. of error, the human bias vitiating such investigations being revealed in the fact that there was a general exaggeration of weight. When patients were reputed to have lost weight there were special inquiries, and a good deal of trouble was imposed on all concerned. Sir James inquired whether the *conformateur* had ever been employed for the identification of criminals.

In reply Dr. GARSON said that the dilemma in which Mr. MacIver found

himself was the result of a deduction he had made for himself from incorrect premises. There existed no such incompatibility as Mr. MacIver had stated, in the use of the measurements of the head mentioned, for showing racial as well as individual characteristics. In all races of people these measurements have a considerable range of variation, and in mixed races they are but slightly correlated; for these reasons they are admirably adapted to demonstrate the individuality of persons measured and likewise for purposes of classification, the special desiderata in criminal anthropology. They are equally well adapted for indicating race characters, because in different races they vary proportionately to one another very considerably, but in persons of the same race, if the race be what we term pure, their proportionate variation is small or has a nearly similar ratio. The absolute head-lengths of two persons may differ considerably, and yet the heads may have identically the same morphological formation if the breadth of the longer one be sufficiently great to make both proportionately alike—in other words, if the measurements of length and breadth in each give the same cephalic index, or place them together in any scheme by which the relative proportions of the two measurements are shown. In criminal work the direct linear dimensions of parts are used, while for distinguishing race characters it is relative proportion which is sought for and used, the actual size of the head being usually expressed by cubic dimension or by some empirical formula worked out from the linear dimensions. From the same set of measurements, therefore, the two kinds of information required for totally different purposes may be equally well ascertained. The real determining cause of the selection of the same measurements for both purposes, apart from their intrinsic suitability for each, is no doubt due to the fact that, of all measurements which may be taken of the head, these are the ones which can be obtained with the greatest degree of accuracy, a matter of vital importance in criminal identification, and no less important in ascertaining race characters.

The opinion Colonel Garsia has expressed regarding the new system of identification is indeed high testimony in its favour, as no one is better able than he is, from practical experience of both it and the old system, to form a comparative estimate of their relative efficiency. When the new system was introduced Colonel Garsia was Secretary to the Prison Commissioners, and it is due in great measure to him that the portion of it which is done in the prisons was begun and carried on by the prison officials with the greatest good-will and zeal. The introduction of something new, entailing additional work without corresponding pecuniary advantages, is in any organised service usually beset with many difficulties. In this case nothing of the kind was experienced, and he could not speak in too high terms of the loyal support and co-operation he had had throughout in the work from one and all of the prison officials. He was also greatly indebted to Colonel Garsia, and to his successor, Major Clayton, for the assistance they had at all times given him in connection with his duties.

In reply to Mr. Galton, he desired it to be clearly understood that his own remarks on classification by finger-prints apply to their use for this purpose on a large scale without the aid of measurements; as is being attempted in India. He himself used a sub-classification by means of them, in conjunction with measurements, and was contemplating still further developments in this direction, but was not going to say more on the subject that night, as he hoped to make it the

subject of a subsequent paper. The formula of the finger impressions has been for the last two years the means by which individual cards are picked out, after the drawer or division of the drawer, wherein the card sought for should be, has been determined by the measurements. It was very interesting to have from Mr. Galton an account of his personal visit to the Identification Laboratory at Cairo, and of the very excellent work which the speaker knew was being done in Egypt by his friend Colonel Harvey.

M. Bertillon claims that in Paris the use of his system has been a deterrent to crime such as Sir James Crichton-Browne has anticipated: certainly it has been followed by a diminution in the use of *aliases*. Before anything can be said as to the deterrent effect of the system in this country it will require to be more extensively used than at present. The *conformateur* has not been used in the identification of criminals, and whether there is any scope for its use in this field is extremely doubtful, it being only in part an instrument of precision. The same difficulty as occurs in classifying photographs would hold good with respect to the classification of the outlines of the head obtained by means of it.

The PRESIDENT complimented Dr. Garson on his lucid explanation of a difficult and complicated subject; and while he agreed with him that the system was effective in its working, he regretted at the same time the absence of Mr. Henry, who, after trying the Bertillon system in India, had abandoned it for finger-prints alone. Committees had sat in India and in London on the comparative merits of the two methods of identification of criminals, and had come to opposite conclusions; so that in India the finger-prints were considered sufficient, while the English committee rejected the finger-prints except as an accessory, and adopted the more complicated metric system. On these grounds he thought there was still room for further argument.

MYCENÆAN CYPRUS AS ILLUSTRATED IN THE BRITISH MUSEUM EXCAVATIONS.

BY ARTHUR J. EVANS.

THANKS to the excavations made in Cyprus on behalf of the British Museum by means of the Turner Bequest, it has been for the first time possible to obtain a clear insight into a distinct and highly important phase of the insular civilisation. Hitherto, though abundant materials existed relating to the Earlier Bronze and Copper Age of Cyprus and again to the form of Early Iron Age culture to which the name of Greco-Phœnician has been given, the evidences of Mycenæan influence were but sparsely attested. In Mr. J. L. Myres's comprehensive introduction to the early Cypriote remains in the recently published Catalogue of the Cyprus Museum, it was only possible to deal with this section of the subject in the most general terms. But with the results before us of the fruitful excavations conducted by Dr. Murray and his colleagues at Amathus, Curium, and Old Salamis, the Mycenæan factor in the unwritten history of Cyprus assumes a wholly new importance. The impress of this Ægean element is so strong that we find ourselves in presence not of sporadic influences or isolated importations of objects, but of a distinct period in the insular civilisation to which the name Cypro-Mycenæan must henceforward be given.

Dr. Murray and his colleagues must certainly be congratulated on the wealth of illustration with which these results are set forth in their recent publication,¹ including fourteen photographic process plates and a number of figures in the text. Many of these figures, it may be added, have a special value from the fact that they represent, in a collective form, groups of vases found together in the same tomb.

The finds at Enkomi or Old Salamis were extraordinarily rich in gold objects belonging to the Mycenæan Age. Indeed, since Schliemann's excavation of the Akropolis graves at Mycenæ, there has been, if we except the Ægina Treasure, no such a discovery of gold objects belonging to the prehistoric period of Greece. Both these, the carved ivories, and the vases in a naturalistic indigenous style imitating Egyptian porcelain, combine to throw a wholly new light on the art of this interesting period.

Considering the generally conservative character of Cypriote art, it might be tempting to believe that we have here the record of a survival of the Mycenæan

¹ *Excavations in Cyprus (Bequest of Miss E. T. Turner to the British Museum)*. By A. S. Murray, LL.D., F.S.A., Keeper of Greek and Roman Antiquities, A. H. Smith, M.A., F.S.A., and H. B. Walters, M.A., F.S.A., Assistants in the Department of Greek and Roman Antiquities.

style belonging to a considerably later date than the Mycenæan remains of Greece proper. Groups on some of the ivories, such as the man fighting with a griffin, show a certain community with the designs on later Cypro-Phœnician silver bowls and on scarabs and ivories found by Layard in the Palace of Nimroud and dating from about 850 to 700 B.C. Dr. Murray himself has consistently stood out for a chronology which brings the pure Mycenæan style down to the "Age of the Tyrants" and makes it "the immediate predecessor of the Ionian Greek art of the seventh century B.C." In the present publication he has endeavoured to draw new arguments in support of his thesis from such approximations as the above between Cypro-Mycenæan and later works. The present work, set forth under official auspices, is so full of suggested chronological deductions and—if its authors will pardon the expression—archæological insinuations, all pointing in the same direction, that it is time to inquire whether there is any real warrant for these highly revolutionary conclusions.

Nothing is clearer than that "Ionian" art in many respects represents the continuity of Mycenæan tradition. But it is also none the less evident that its designs do not as a whole fit on directly to those of the great days of Mycenæ. There are missing links in the chain which must be supplied from some intermediate quarter. A whole series of new winged creations—Harpies, Gorgons, Pegasi—have come into being. New ornamental motives, such as the Assyrian rope pattern or guilloche, have obtained a vogue. Here and there types remain practically unchanged. Here and there has been an actual revival—especially conspicuous in the Melian class of gems and in some of the oldest coin types—of designs belonging to the great Mycenæan Age, but in this case executed with inferior skill on softer materials. There is a real renaissance, and there is also an unbroken tradition. But wherever in Greece proper this survival of Mycenæan forms is most clearly traceable—as, for instance, in Crete—it is found in combination with entirely new elements, due in Greece itself to the invasion of the old Mycenæan area by "geometrical" forms. In Cyprus itself the same mixed style is visible, due largely to the borrowing of Egyptian and Assyrian elements under the influence of the eclectic Phœnician taste. It is this hybrid culture, and not the pure Mycenæan type, that stands immediately behind the so-called "Ionian" civilisation of the seventh century B.C.

But if we examine the relics of Mycenæan Salamis as revealed to us by these excavations what do we find? Cyprus is Cyprus, and the geographical affinities of the island naturally make themselves felt. There are certainly here more traces of Mesopotamian and Egyptian influence than would be found in the contemporary deposits of the Ægean lands. But the vitality of the local genius is still sufficient to assimilate into its own being the borrowed elements. The prevailing type of seal, for instance, is the Oriental cylinder, and among the most frequent of the engraver's designs is a native adaptation of the Egyptian floral pillar as seen on the porcelain ornaments and beads of Tell-el-Amarna. But the whole together forms a new sphragistic style of a specifically Cypro-

Mycenaean class—a class about which much might be written, but the very existence of which has been passed unnoticed by the authors of the work before us. The ivory groups of the man struggling with the griffin, though they represent the taking over of a familiar Chaldaean scheme, reproduce it nevertheless in an indigenous garb. For the groups on the casket and mirror handles are homogeneous in their character. There is here no impertinent juxtaposition of undigested elements borrowed from various foreign sources, as when we see upon a Cypro-Phoenician bowl a winged Assyrian figure beside a hawk-headed Egyptian divinity.

For my own part I was quite prepared, nevertheless, to believe that the relics from these Cypriote tombs would enable archaeologists to trace a living Mycenaean style in the island to a distinctly later date than that which is now generally taken as the latest approximate limit of the period. It seemed on the face of it extremely probable that a part of these remains might come down after 1100 B.C. I was, indeed, the more inclined to accept such a conclusion, from the fact that in the case of the Ægina Treasure, the jewellery of which presents certain points of affinity to some of the Enkomi specimens, I had committed myself to the suggestion that the date when these Late Mycenaean objects were deposited might come down as low as 800 B.C.¹

But a careful examination of the new Cypriote finds has convinced me that there is no sufficient evidence for assigning to any of the Mycenaean relics found a later chronology than that which lies within the limits generally claimed for that civilisation. The affinities traceable among them to the Treasure from Ægina must, moreover, be rather taken as showing that the Late Mycenaean phase there represented belongs to a distinctly earlier date than I had myself been formerly led to assign to it. No doubt there are among the objects from the Mycenaean tombs of Old Salamis and the other Cypriote sites at present in question a few objects of later fabric. Some of the tombs, as results from information supplied by the principal *scavatore*, showed evidence of secondary use, and the fact that from May to July the excavations at Enkomi were by the circumstances of the case conducted without the presence of an expert archaeologist² makes it unnecessary to attach any great importance to small individual discrepancies in the character of some of the finds. On the whole, however, this intrusive element is extremely small, and the tomb-groups present a very homogeneous Cypro-Mycenaean character.

So many questionable conclusions have been drawn from these finds by the authors of the present publication that it seems desirable to examine them somewhat in detail, especially in regard to the chronological indications that they afford.

The irruption *en masse* of ceramic and other types of Ægean origin on the

¹ *Journal of Hellenic Studies*, xiii, p. 224.

² Dr. Murray states in the preface to his work that "from May to July the excavations were superintended by Mr. Percy Christian, who made a careful record of the contents and shape of each tomb." But, for the delicate questions connected with secondary interments, the constant presence of a trained archaeologist is necessary.

traditional products of Cyprus itself is of special interest in its probable relation to the early Achaean colonisation of the island of which its later quasi-Arcadian dialect was an abiding record. In this connexion the new materials now before us yield at least one important negative result. The earlier Mycenaean elements, such as we see them in the Akropolis tombs at Mycenae itself, in Thera, in Crete, and elsewhere are here conspicuous by their absence. It was not therefore till Mycenaean civilisation had attained its mature development that it asserted a dominant position in Cyprus. The earliest period represented in these finds corresponds with that which a variety of discoveries of Egyptian objects with Aegean finds and of Mycenaean objects in Egyptian deposits approximately indicate as the fourteenth and fifteenth centuries B.C. In other words, these earliest Cypro-Mycenaean fabrics belong to the same age as the Vapheio tomb, and the most typical graves of the lower town of Mycenae and of Ialysos.

The internal evidences of date supplied by these Cypriote finds fully corroborate this general conclusion. Together with the new intrusive class of Aegean wares which predominated in the early tombs of this period at Enkomi, Curium, and elsewhere, there came to light a certain proportion of painted vessels answering to the Bronze Age ware of Cyprus itself. Besides these were found many specimens of types of pottery belonging neither to the Aegean nor to the indigenous Cypriote class. One of these extraneous types is that of the black clay bottles¹ (Fig. 1) with punctuated decoration, a class which occurs as a foreign



FIG. 1.—BLACK PUNCTURED WARE FROM ENKOMI.

ingredient in Egyptian tombs as early as the Twelfth and Thirteenth Dynasties and continues to be found there in the succeeding Eighteenth Dynasty period. Another, probably imported class of pottery found in these Mycenaean tombs consists of flask-like vessels of brown bucchero apparently imitating leathern forms.² These vessels have been found at Lachish and other Palestinian

¹ See p. 6, Figs. 1303, 1304, 1306. This and other figures are here reproduced with the kind permission of the Trustees of the British Museum. This ware is referred to by Mr. J. L. Myres, *Cyprus Museum Catalogue*, pp. 36, 37, as "black ware," and he rightly indicates its early associations.

² This is referred to by Dr. Murray as "moulded ware" (see p. 6 and Fig. 7, and other examples in the tomb-groups given under Figs. 62, 66, and 69). Mr. Myres, *op. cit.*, p. 36, calls it "base-ring ware," but some of the most characteristic flasks have no ring at the base.

sites, a fact which seems to point to that quarter as their place of fabric. What, however, is of special importance in relation to the frequent appearance of these foreign flasks in the Enkomi tombs is the fact that they are almost equally frequent in Egyptian tomb-groups of the Eighteenth Dynasty.¹

The Mycenaean vases found in the Enkomi graves fully bear out this chronological equation. Apart from certain local varieties, such as those with chariots and others with bull-fights (*cf.* Fig 4, No. 1205) these are of the fully developed class answering to the fragments found in the Tell-el-Amarna mounds representing the waste-heaps of the Palace of Akhenaten (B.C. 1383-1365) as well as in closed tombs of the same Eighteenth Dynasty period. The pomegranate-like glass vessels (Fig. 4, No. 1218) found with them resemble, as Dr. Murray himself admits, examples found by Professor Petrie at Gurob in deposits ranging from about 1450 to 1200 B.C.

In the same Egyptian deposits occurred a form of bronze pin with a central eye which closely corresponds with a typical form of gold pin found in the Enkomi graves (Fig. 2). The type itself is of old Cypriote derivation, and early varieties of it have been found in pre-Mycenaean interments of the island, such as those of Aya Paraskevê. It seems, moreover, to stand in an intimate relation to certain perforated pins found in the Italian Terremare and contemporary tombs and Lake-Dwellings, which may in turn be connected with the earliest fibula-types of the Scandinavian Bronze Age. But Dr. Murray, neglecting the obvious comparisons supplied from these sources, and especially the Gurob finds, seizes on the fact that some of the Enkomi pins are surmounted by ribbed beads of blue paste as an argument for bringing down their date some seven centuries later than

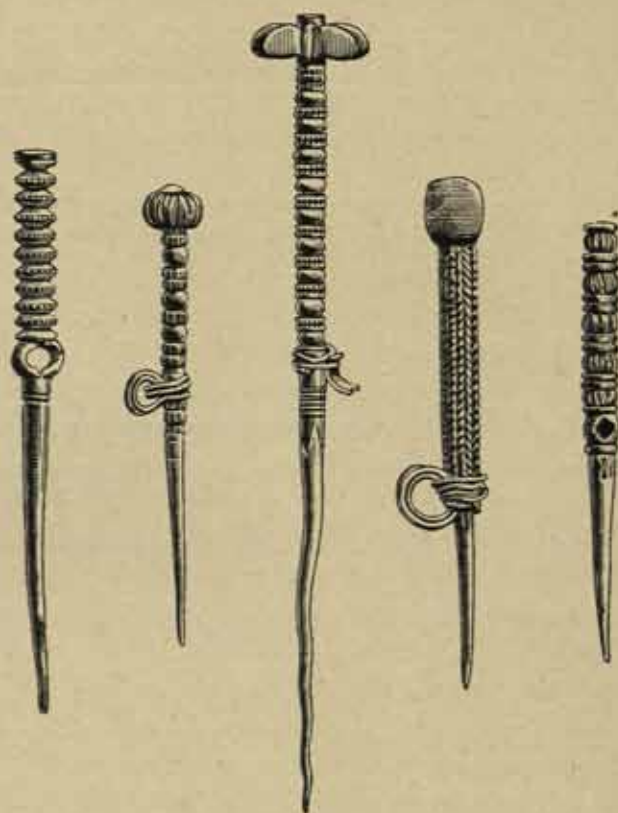


FIG. 2.—GOLD PINS FROM ENKOMI.

¹ Several groups of this kind, from the excavations of Professor Petrie and others, are in the Ashmolean Museum at Oxford.

the parallels above cited would naturally imply.¹ As a matter of fact, the use of glass paste imitations of lapis lazuli for beads and inlaying is a thoroughly Mycenaean characteristic, while such a practice among the later Greeks is at any rate extremely rare. But Dr. Murray is so far carried away by this argument that he does not hesitate to compare the Enkomi pins with those that fasten the chitons on the shoulders of the Fates on the François vase, dating from the seventh century B.C. It is sufficient to observe that the pins on the vase are of an essentially different type, with the loop or eye at the head instead of the middle.

Of fibulas or safety-pins proper, only two examples² were found in the Enkomi cemetery (Fig. 3). Both of these represent a very slight

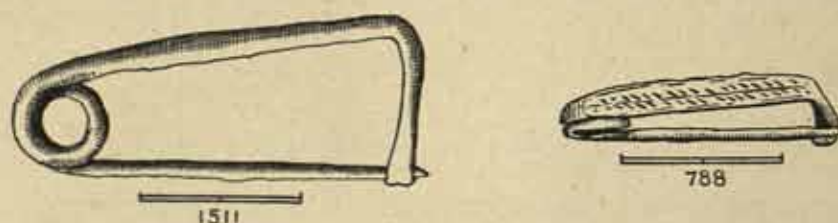


FIG. 3.—BRONZE FIBULAE FROM ENKOMI.

development of the earliest "fiddle-bow" form. They are of much the same type as some of those found in the tombs of the lower town of Mycenae, except that what may be called the "stilt" at the catch end is somewhat higher. But they are less developed than two examples from the Curium cemetery (Figs. 92, 93, p. 68), one of them found in a tomb still belonging to the pure Mycenaean period and containing characteristic pottery and implements of bronze. This latter type is represented by two gold fibulae now in the Ashmolean Museum, found with a *bügelkanne* of the latest Mycenaean style at Old Paphos, and by another similar from Kition belonging to the Cesnola Collection. This slightly more advanced type, however, itself supplies the antecedent stage to the earliest fibulas of the Geometrical Period. Dr. Murray contents himself with the observation that "it may be remembered that at first one of the arguments in favour of a very early date for the antiquities of Mycenae was the absence of bronze fibulae." The argument, which still holds good, was applied to the contents of the Akropolis shaft-graves, which are generally recognised as earlier than the

¹ Dr. Murray quotes, in support of this, a comparison instituted by myself between the cut paste inlaying of the eyes and brows of some embossed heads on a gold ornament of the Ægina Treasure with the inlaid work applied in the same manner to eyes and eyebrows on ivories from the N.W. Palace at Nineveh. But the inlaid work in that case was of lapis lazuli and not of glass paste, as he erroneously quotes me as saying (p. 19). The particular application of the inlaying on the Nimroud ivories to the eyes and eyebrows is a parallel that must still hold. But I based no chronological conclusions on the use of glass paste itself. I was, indeed, careful to point out that sliced lapis lazuli inlayings, analogous to the blue paste of the Mycenaeans, are seen in the cloisons of Egyptian jewels from the Seventeenth Dynasty onwards.

² Fig. 27, p. 21.

tombs of the lower city, where fibulae of this primitive type were found. It is quite sufficient for our present purpose that at Enkomi, where the mature stage of Mycenaean art was represented, fibulae occurred of a type certainly not later than the twelfth century B.C.

Amongst the other ornaments found in the Enkomi tombs was a fine gold collar or pectoral inlaid with glass paste. Of this collar Professor Petrie observes that it presents "nine different patterns of gold pendants, and eight of the nine are well-known designs of the time of Amenhotep IV (Akhenaten), but are not found a century later. . . . Even the lotus, which is one of those forms and is so common in Egypt in all ages, has here the very narrow petals which are exactly like the lotus inlay of this reign." He further observes that in the same cemetery was found a metal ring of Amenhotep IV, probably before his change of religion, as the God Ptah is named upon it and many scarabs of this king name the Gods, before his conversion to monotheistic sun-worship. The occurrence of this ring is specially important, since for obvious reasons the heretic Amenhotep IV was not a Pharaoh whose cartouches were imitated at later periods.

Tomb 93, in which the gold collar occurred, supplied another valuable indication of date in the shape of a porcelain scarab with the name of Queen Tyi, the consort of Amenhotep III and mother of Akhenaten. The great importance of this find is that it fits on to a series of four earlier discoveries of scarabs and glazed ware, with the name of Amenhotep III or his queen, in tombs and buildings at Mycenae itself and at Ialysos, demonstrating peculiarly intimate relations with Egypt in the first half of the fourteenth century B.C.

But Tomb 93, the chronological place of which is thus clearly defined by evidence which can hardly be called in question, contains not only the richest and most typical group of gold ornaments found in Enkomi (*see* Plates V, VI, and VII), but Mycenaean pottery of a characteristic indigenous style, including vases exhibiting spotted bulls and a fragment representing pugilists on either side of the rayed pillar tree frequent on the contemporary cylinders of the island. In this tomb, the early character of which is so clearly defined, there was also found a silver ring "engraved on the bezel with Egyptian hieroglyphics which it is contended"—the quotation is from Dr. Murray—"indicate a date not earlier than the eighth or seventh century B.C." If this "contention" be substantiated, the ring must either belong to a secondary interment, of which there seems to have been no other trace, or have worked in from the outer earth. But the character of too many other "contentions" in the present work makes another alternative equally possible. In other words it is difficult to withhold a suspicion that the ring itself may also prove to be of Eighteenth Dynasty date.

Among the silver vases found in the Enkomi cemetery, one is of great interest as representing the type of the famous gold cups of the Vapheio tomb. These cups, as their marvellous *repoussé* designs sufficiently declare, belong to the most perfect period of Mycenaean art. An approximate chronology has been already supplied by the delineation of the same form on a Theban tomb-painting

of Queen Hatasu's time (1516-1481 B.C.),¹ and more recently by its occurrence on an inscribed clay tablet, referring to the royal treasures, from the Palace at Knossos. Remains of this Palace do not include the latest style of art represented at Mycenæ itself, that namely belonging to what may be called the "Round-Shield Period," illustrated by the painted Stela from the Lower City and the "Warrior Vase." It therefore appears probable that the vases of this Vapheio class were in vogue during a period extending from about 1500 to 1300 B.C. There is no trace of any later survival or development of this special form. But, since the Enkomi example was found in a tomb (No. 92) together with Mycenæan pottery and gold pins of the class described above, according to Dr. Murray's system it belongs approximately to the date of the François vase!

In Tomb 28, at Curium, was found a sard scarab in company with a Mycenæan "kylix" with the typical cuttlefish design, a funnel-shaped vase adorned with the equally typical murex shells, and a flat spouted bowl, also belonging to a common Mycenæan type. That the tomb-group as a whole belongs to a good Mycenæan period is obvious. That the scarab forms an integral part of it is extremely probable. With regard to the scarab I must again quote Professor Petrie,² whose authority on this class of Egyptian objects is widely recognised. "The scarab," he observes, "is very closely similar to one of Ramessu II in outline, form of the back, and mode of cutting, and such fabric is not known in later times. It bears a figure of the god Thoth seated, with the sun and moon on his head, perhaps referring to his connection with the god Khonsu. This type of Thoth, either as an ibis-headed man or as a baboon, is one of the commonest designs on scarabs of Ramessu II. I know of some sixteen with this god, two of which have the winged disk over his head as on the Curium scarab. If I have paused thus to show how in style and subject this scarab is identified with the works of Ramessu II, it is because this has been by some curious chance attributed to a far later age and has been set forth as dating a period" (Mr. Petrie is referring to a preliminary notice in the *Times*, 6th January, 1896). "How such a mistake arose it is hard to say. In the Enkomi cemetery another scarab of Ramessu II was also found."

It is difficult to believe that anyone who has, like myself, had an opportunity of comparing one of the Ramesside scarabs referred to by Professor Petrie with the Curium specimen can doubt the justice of his conclusion. But Mr. Walters, with Professor Petrie's observations at his disposal, contents himself with the following bald pronouncement, the authority for which he does not give:—"In date this scarab appears to be not earlier than the twenty-sixth dynasty (B.C. 666-527). There is no evidence that it belongs to a later burial, and it is a remarkable and important piece of evidence for the late date of the Mycenæan civilisation in Cyprus if a seventh century scarab can be contemporaneous with pottery of the Ialysos type" (p. 65).

¹ The tomb of Sen Mut. A more complete representation of this painting than has yet been published will appear in the forthcoming work of Mr. Percy Newberry.

² *Transactions of the Royal Society of Literature*. Vol. xix, p. 73.

Let us put this argument in another form. A coin is found in a Roman tomb which, from the fact that a half-effaced *Britannia* appears on its reverse, is described as an early penny and referred perhaps to Charles II's time. A first authority on Roman coins, however, points out that it is a not uncommon coin of Hadrian presenting the same figure, and that in fact it belongs to the same date as the other objects from the same tomb. On the face of it there is little doubt on which side the probability lies. But admitting the unlikely supposition that, when thoroughly cleaned, the coin after all turns out to be of Charles II's time, to what natural conclusion would such an identification point? The obvious and indeed only possible explanation is that, as has often happened in such cases, the penny had found its way into the deposit at a later date. Even a "local antiquary" would hardly see in it "a remarkable and important piece of evidence" for the late date of Roman civilisation in Britain.

In the next paragraph there is noted the occurrence in Tomb 43 of what is described as a "Phœnician cylinder of black basalt on which is incised a sphinx or gryphon guarding a sacred tree much conventionalised," and this is cited as another indication of the late date of Mycenaean civilisation. Its probable date is fixed as about 600 B.C., and this view is supported by the altogether unintelligible argument that before this period "such objects could hardly have been imported." Strange as is this conclusion and the consequences derived from it, it has not been thought necessary in the work before us to give any representation of the cylinder, which was found with Mycenaean jewellery of an early class and itself presents one of the most usual of the Cypro-Mycenaean cylinder-types.

It will be seen that the new material supplied by these Cypriote graves, so far from implying a late survival of Mycenaean culture in the island, takes us back at every point to a period contemporary with that of the mature art of the class as seen in the Ægean area. The new elements that we find here—and they are some of them very remarkable—are due to local conditions and to a nearer contact with Syrian and Egyptian civilisation. The intimate relations with Egypt are attested by the comparative abundance of imported Egyptian porcelain or of imitative native glazed wares. Among these indigenous works is a rhyton in the shape of a horse's head in a strikingly naturalistic style (Fig. 4, No. 1217). Another takes the form of a ram's head, while two other vases are in the shape of women's heads, in one case back to back (Fig. 4, Nos. 1210, 1211). These porcelain rhytons, and still more the last-mentioned vases with female heads, one of which has the hair behind drawn up in a net, present the most remarkable resemblance, as Dr. Murray justly points out, to some Greek painted vases of the sixth century B.C. It must, however, be borne in mind that glazed ware such as we see in these Cypriote vessels is quite foreign to later Greek art, and that rhytons in the shape of animals' heads occur on Egyptian wall-paintings of Eighteenth and Nineteenth Dynasty date among the tributary gifts of the Kefts and other foreigners. Among the Syrian vessels taken by Sety are certain rhyton-like vases terminating in sphinxes' heads with the hair turned up as if

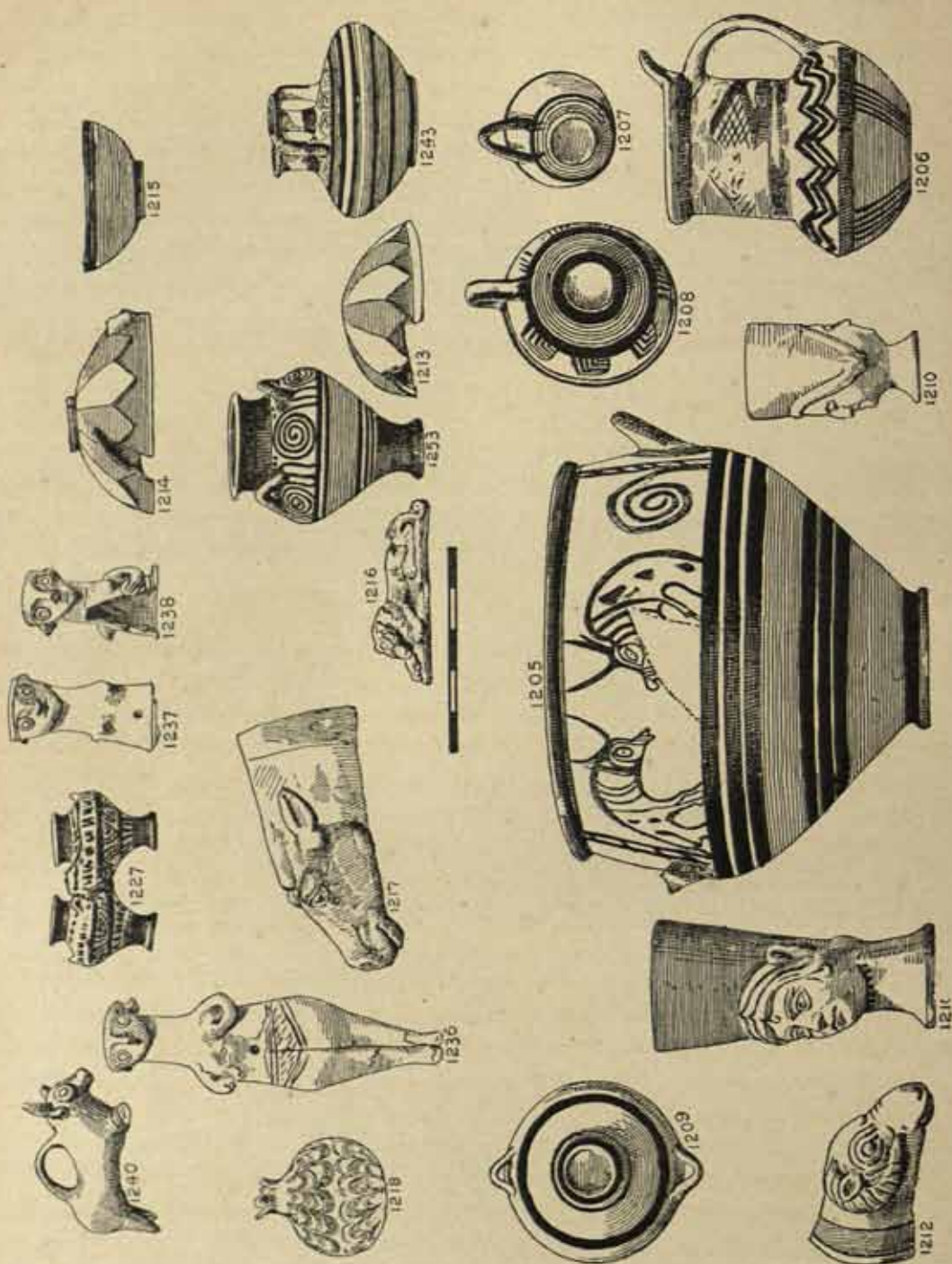


FIG. 4.—OBJECTS FROM ENKOMI.

in a bag behind and a caliciform excrescence above—in this case probably a derivative from the "House of Horus" on the head of Hathor—which somewhat recalls the upper part of the cup above the female head on the Cypriote vase.

That the later Attic form shows an extraordinary conformity with these Mycenæan cups is undeniable. But a possible explanation is supplied by parallel phenomena in other branches of art. Many of the earliest coin-types of Greece are actual revivals of designs taken from the numerous engraved gems of the best Mycenæan period. We have not here to do—as I was myself once inclined to suppose—with a mere survival of Mycenæan types. The free, naturalistic figures of the Mycenæan gems had been long since extinct, and a gap of some six centuries separates them from the earliest Greek dies. It was a rather deliberate revival of ancient models, and the archaic art of Greece in fact anticipated one of the most characteristic features of the Italian Renaissance.

The ivory carvings found at Enkomi claim special attention both from the intrinsic excellence of their workmanship and from the obvious relation in which they stand to the reliefs in various materials found at Nineveh. In these carvings better than elsewhere we trace the development of a Cypro-Mycenæan school of sculpture which was to leave its mark on all later Assyrian art. But this local school is itself associated with works in the same material from *Ægean* deposits belonging to the same mature Mycenæan period. In the case of a bearded head, surmounted by a conical helmet adorned with rows of boars' tusks, we recognise indeed, an almost exact parallel to the ivory heads with helmets of an identical character found in the tomb at Spata and in Grave 27 of the lower town of Mycenæ itself associated with lentoid gems and other objects belonging to the finest style of art. This evidence of contemporaneity is further confirmed by the bronze implements and good Mycenæan pottery found with this and other ivory carvings at Enkomi, and shows that they cannot be separated in date from the rest of these very homogeneous finds. In Tomb 16, with the above-mentioned helmet, was found part of a small ivory mirror-handle exhibiting reliefs of a recumbent stag or goat. These mirror-handles are a characteristic local fabric, and it was on one of these, from Tomb 17, that was carved the figure of the man slaying the griffin already referred to as presenting a close parallel to similar subjects on later Cypro-Phœnician bowls (Fig. 5). The griffin on this mirror-handle, with the spiral locks about his neck, answers nevertheless to an usual Mycenæan type, and the warrior wears a conical helmet closely resembling that already described. The lion seizing a bull seen on the back of this, and on another mirror-handle, recalls the design on a series of Mycenæan gems. In short, there is nothing here to separate these ivory carvings as a class



FIG. 5.—WARRIOR ATTACKING GRIF-
FIN: RELIEF ON IVORY DRAUGHT-
BOX, ENKOMI.

from the objects of the best Mycenaean period, with which they were associated. The work is spirited and naturalistic, and in more than one respect recalls the magnificent reliefs of the Vapheio vases.

Among these ivory objects is one which deserves special attention. This is an oblong box, the lid of which is marked off into squares in a manner identical with that of the draught-box of Queen Hatasu (c. 1481 B.C.). But, if the character of the game is Egyptian, the reliefs on the two long sides of the casket present a curious similarity to Assyrian hunting-scenes. On the best preserved side a mailed warrior armed with a bow is driven in a chariot with richly caparisoned horses at full gallop after a herd of bulls and antelopes (Fig. 6).



FIG. 6.—CHARIOT SCENE ON SIDE OF IVORY DRAUGHT-BOX FROM ENKOMI.

The general resemblance to the Assyrian scenes is evident. Yet when we come to look into details a number of divergent points at once strike the eye. The car of the Assyrian chariot rises at the back; that of the Enkomi draught-box falls away. A distinguishing feature of both the Assyrian and the Mycenaean chariots is the reduplication of the pole by an upper support starting from the top of the front of the car and meeting the pole at the yoke. But here we find a simpler arrangement, in which only the spring of the pole is connected by a cross-piece with the car-front.

In both these characteristic features the chariot of the draught-box follows Egyptian models, as illustrated by Eighteenth and Nineteenth Dynasty monuments, as may be seen from the chariot of Rameses III given in Fig. 7, the only difference being that on some of the Egyptian examples, the back part of the pole is connected with the car-front by thongs in place of a wooden cross-piece. The same monuments show that this Egyptian type of chariot was also common to the contemporary Syrians. On the wall-paintings of the tomb of Rekhmara a Rutennu of North Syria is seen with a chariot of this form, and it reappears driven by Kheta or Hittite warriors in the frescoes of Rameses II representing the great battle of Kadesh (Fig. 8).

The shape of this Hittite car, with its simple rounded outline behind, is

identical with that of the ivory relief. But the correspondence goes beyond this. The most characteristic of the horse-trappings connected with these Hittite war-chariots are a broad collar round the neck and a body-covering which seems to consist of a kind of armour. These features—notably the body-covering—also reappear on the draught-box, where the bowman himself is also seen wearing a



FIG. 7.—CHARIOT OF RAMESES III.



FIG. 8.—HITTITE CHARIOT: BATTLE OF KADESH.

coat of mail. This latter feature is not shared by the warriors of the Kadesh chariot; on a late Hittite monument, however—the relief, namely, of Sakshe-Gözü, which from certain Assyrianising features Puchstein is inclined to bring down

to the close of the eighth century B.C.,¹ and which represents a royal personage in a chariot, hunting lions—both the horse and the riders in the car are accoutred in scale-armour.

This scene has been justly cited by Dr. Murray as a parallel to the Enkomi carving, but though in some respects it shows a survival of the older Hittite fashion, the chariot itself belongs to the Assyrian class. The back of the car rises instead of falling away, and the long upper support is visible above the pole.

On the other hand, a feature of the Enkomi design remains to be described which again takes us back to an earlier period. On one side of the draught-box there appears behind the chariot a figure of a man holding an axe, who wears on his head a plumed casque (see Fig. 6). This casque (as Dr. Murray himself does not fail to observe) is the familiar head-piece of the enemies of Egypt—Purasati, Takkaras, and other peoples from the southern coast of Asia Minor and “the Islands of the Sea”—whose overthrow by Rameses III, in a sea-fight near the mouth of the Orontes, is commemorated on the pylon of Medinet Habou (see Fig. 9).

To sum up the evidence as to this remarkable ivory relief. The carvings at the two ends, representing groups of goats and oxen, belong to the usual Mycenaean cycle, and are practically indistinguishable from the designs on the mirror-handles from the same Enkomi tombs. The hunting scenes on the sides, however, though executed by the same Cypro-Mycenaean hands, show a form of chariot and types of armour and costume different from the Mycenaean. They are equally divergent from Assyrian fashion, and although much in the design shows a certain relationship to similar scenes on the monuments of Nimroud, Kouyunjik, and Khorsabad, there is no real reason for assigning them to this later period. Their closest affinities lie nearer at hand, and they seem to have been executed to record the prowess of some princely Nimrod belonging to one or other of the contemporary races of the opposite Syrian or Cilician coasts. The closest parallel, both to the chariot and to the horse-trappings, is to be found in those of the Hittite warriors delineated on the monument of Rameses II; the feather helmet most nearly resembles those of the Anatolian foemen of Rameses III.

A certain falling off in the execution makes it reasonable to suppose that the carvings on the draught-box are somewhat later in date than the finer reliefs in ivory found in the same Enkomi tombs, such as the mirror-handle with the warrior and griffin. A feature, moreover, in the inventory of Tomb 58, which contained the draught-box, corroborates this view. It was, in fact, one of the few graves in which was discovered an iron object, in this case remains of an instrument set in an ivory handle in the shape of a bull's leg. This ornamental treatment of an iron object is, as we shall see, characteristic of the beginning of the transitional period which precedes the pure Age of Iron and implies a certain posteriority of date as compared with the tomb-groups containing exclusively implements of bronze.

¹ K. Humann und O. Puchstein, *Reisen in Kleinasien und Nordsyrien*, p. 375 seqq. and Pl. XLVI.

The figures of the armed warrior grappling with a griffin (Fig. 5) that occur on two of the ivory mirror-handles seem, from their superior style, to belong to a somewhat earlier period than the draught-box. These are of special interest in their relation to forms of armour in vogue among the Mycenæans in Cyprus. They bear round shields with a broad circular border, a circumstance which shows that this form of shield—which in the Ægean area seems only to have come into use in the period of decadence that produced the "Stela of the Warriors" found in the lower town of Mycenæ—had obtained an earlier vogue in Cyprus. The appearance on these ivories of a round shield coupled with the conical helmet enables us to establish a comparison which gives a singular support to this conclusion. It will be remembered that in the third shaft-grave at Mycenæ there was found a fragment of blue porcelain showing a warrior's head in relief with a helmet, similar to that of the figures on the ivories, save that it shows a horn in front, and part of a round shield.¹ The character of the armour, as well as the Egyptianising material so common at Enkomi, makes it probable that the fragment was either of Cypriote derivation or even from some early Ægean plantation in the Delta itself, and shows that the East Mediterranean offshoots of the "Mycenæan" stock had early adopted the round shield in preference to the 8-shaped body-shield, which long maintained itself on the mainland and islands of Greece.

This acquaintance with the round shield is quite in keeping with the fact that the invaders from Western Asia Minor, as well as the Shardana seen in the battle-pieces of Medinet-Habou, in many cases also hold shields of the same form. Another circumstance makes this comparison still more pertinent. Many of the Western warriors on Rameses III's monument are seen armed with a kind of cuirass,² formed of a succession of plates, sometimes horizontal, sometimes rising towards the middle in a double curve (Fig. 9). Cuirasses with plates arranged in the horizontal manner may with great probability be recognised in certain objects figured along with chariots and horses on a class of inscribed clay tablets from the Palace of Knossos. The other type with the double curves recurs in the case of the two warriors grappling with the griffins on the mirror-handles of Enkomi (Fig. 5).

Recent discoveries thus supply a double corroboration of the Homeric tradition which carries back the use of the round shield and the cuirass or *θώραξ* to the earlier epic period. The poet of the *Iliad*, indeed, makes the breastplate of Agamemnon himself a gift of the Cypriote



FIG. 9.—WESTERN WARRIOR WITH CUIRASS AND PLUMED CASQUE: MEDINET-HABOU.

¹ Reichel, *Homeric Waffen*, p. 58, though he refers to this fragment, passes it over as a foreign importation.

² Cf. W. Max Müller, *Asien und Europa*, p. 364.

King Kinyras.¹ It had ten bands of inlaid metal, a detail which curiously corresponds to the horizontal plates of one variety of the Mycenæan cuirass. In short, the armed figures on the Enkomi ivories present a most valuable illustration of the typical Homeric armour. Here, as in the *Iliad*, the belt or girdle—the Homeric ζωστήρ—which seems to have been fastened behind, follows the lower rim of the cuirass, thus forming a kind of pad round the waist analogous to that which protected the ankles of later Greek warriors from the lower edge of the greaves. Just, too, as in the epic we see this ζωστήρ reinforced by a second belt—ζώμα—with its belt-plate or μίτρη, so on the ivory relief there is seen a double raised ring around the warrior's waist. It was this second or true belt that seems more particularly to have held the chiton or tunic which we see here falling about the hips.

With such a representation before us, a series of Homeric passages on which Dr. Reichel in his recent work on Homeric armour has exhausted his powers of destructive criticism becomes easily intelligible. In the hands of the critic the passages relating to Agamemnon's breastplate and every other example recorded in the *Iliad* are bracketed as interpolations of no earlier date than the seventh century B.C.,² the period, namely, when cuirasses are first historically known. In the few passages where the word θώρηξ is allowed to pass muster, it is transferred by Dr. Reichel to the body-shield.

By the same Procrustean method the greaves of the εὐκνήμιδες Ἀχαιοὶ are reduced to pads of leather—or at most, in Achilles' case, of tin—to protect the shin from the heavy body-shield. That such were worn and for the reason given is probable enough, but the danger of endeavouring to prove too much is again illustrated by the discovery in Tomb 15 at Enkomi of a pair of bronze greaves (Fig. 10). The tomb in which they occurred was of the usual Mycenæan kind, and they were associated with a bronze dagger of a typical form. But Dr. Murray comments on the find as follows³:—"It is contended by Reichel that metal greaves were unknown to Homer. He is satisfied that they were the invention of a later age (about

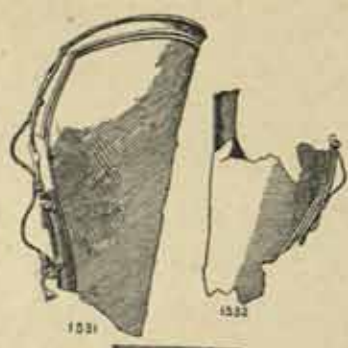


FIG. 10.—BRONZE GREAVES FROM ENKOMI.

700 B.C.). Should he still be of that mind, then our greaves may be of some importance in fixing the date of the Enkomi tombs." Some may think that the concordant evidence supplied by the Enkomi tomb-groups is of more importance than the authority of the ingenious Dr. Reichel in fixing the date of the greaves.

That bronze greaves of pure Mycenæan fabric would ultimately be discovered had long been my own expectation, for the following reason. That such existed in Greece in the succeeding "Dipylon" Period is not yet made out. But it is important

¹ *Iliad*, xi, 19 seqq.

² p. 16.

³ *Homericische Waffen*, p. 102.

to bear in mind that, during the same period, an Early Iron Age culture was developed in the north-western part of the Balkan Peninsula, and perhaps throughout a still wider archaeological province, which in many ways preserves the continuity of earlier Mycenæan tradition in a more uncorrupted form than the contemporary "geometrical" art of Greece.¹ This is shown by the appearance of certain specifically Mycenæan forms of objects—such as, to take a single example, the finger-ring with the major axis of its bezel at right angles to the hoop—and also by a curious survival of the Mycenæan spiraliform decoration. But among the characteristic accompaniments of warriors' remains in these early tombs are bronze greaves² ornamented in this case not only with the concentric circles and tangential connexions that represent the decay of the older returning

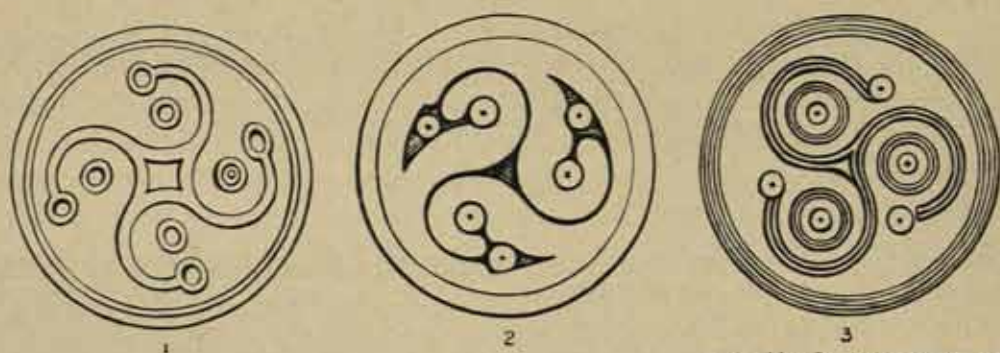


FIG. 11, 1 AND 2.—ORNAMENTAL IVORY BOSSES, MYCENÆ.

FIG. 11, 3.—ORNAMENT ON BRONZE GREAVES, GLASINAC.

spiral border, but by a central design of triquetral curves (Fig. 11, 3), the Mycenæan prototypes of which will be recognised in the gold and ivory bosses found by Schliemann in the shaft-graves (Fig. 11, 1 and 2).

Among the most interesting discoveries of Enkomi was a Mycenæan bronze foundry containing shovels, hammers, tongs, and other implements. With these was found a large copper slab with incurving side which unquestionably represents an ingot (Fig. 12). It is stamped with the Cypriote character *si* and recalls a large number of ingots



FIG. 12.—COPPER INGOT: ENKOMI.

found in the Bronze Age deposits of Sardinia, many of which are impressed with signs in a similar manner. On some of the clay tablets referring to the royal treasures of Knossos are engraved ingots of similar form, also in some cases

¹ The evidences of this Illyrian culture have been brought to light of recent years by the excavations of Radimsky, Truhelka, Fiala, Hoernes, and other explorers in the prehistoric cemeteries of Southern Bosnia and the Herzegovina (see *Wissenschaftliche Mittheilungen aus Bosnien und der Herzegovina*, 1893, etc., passim; and *Glasnik Zemaljskog Muzeja u Bosni i Hercegovini*). In my Rhind Lecture on the "Ancient Venetic Art Province and its Influence on the Celtic Races," an abstract of which was published in the *Scotsman* (December 14th, 1895), I pointed out the Mycenæan traditions in this Illyrian culture and the link which they supply between the decorative system of prehistoric Greece and that of "Late Celtic" art.

² *Wissenach. Mitth. aus Bosnien*, III, p. 11, Fig. 23, from a barrow at Glasinac.

countermarked with linear signs and accompanied by inscriptions in the same Mycenæan script. They are in several cases followed by a balance (τάλαντον) and cyphers apparently indicating their value in Mycenæan gold talents. The scales of a large balance were also found at Enkomi.¹

These parallels are the more interesting in their relation to a piece of Egyptian evidence. On the walls of the Rekhmara tomb at Thebes, already referred to as belonging to Thothmes III's time, the Kefts and People of the Islands, who in other ways are so intimately associated with the Mycenæans, are seen bearing ingots of precisely the same form, marked with the copper sign. On another contemporary tomb an ingot of this shape is being carried to the melting-pot of an Egyptian foundry.

The appearance on the Enkomi ingot of a character of the Cypriote syllabary does not stand alone. Dr. Murray remarks that "on a certain number of vases Cypriote letters have been found. These letters were painted by the potters before the vases were fired." This observation is of extraordinary interest, but perhaps owing to the fact that the writer himself believed the Mycenæan vases in question to date from about 700 B.C., the importance of the phenomenon is so little appreciated that it has not been thought necessary to reproduce the letters thus preserved. The use of characters identical with those of the later Cypriote syllabary among the Mycenæan population of the island is, however, corroborated by another discovery, hitherto equally ignored. In a typical Mycenæan tomb on the Tekke site, near Larnaka, excavated in 1898 by Mr. H. B. Walters, was found a gold ring engraved with characters (Fig. 13) which in the British Museum inventory are



FIG. 13.—ENGRAVED RING: ENKOMI.

set down as imitations of Egyptian hieroglyphs. The characters are contained between two decorative scrolls and are four in number. The sign below answers to the Egyptian ankh or "life symbol," which recurs, perhaps as a religious symbol, on a gold ring from Enkomi. Forms of the ankh are also of frequent occurrence, often associated with divinities, on contemporary "Hittite" seals. It further appears that some varieties of the Cypriote character *ra* resemble this Egyptian sign,² which also recurs, probably with a syllabic value, among the linear forms of the Mycenæan script found in the Palace of Knossos.

This ankh sign, which on the signet ring stands apart from the others, may be therefore either a symbol or a letter. Of the other three signs, however, 8 is identical with the Cypriote *le* and T with *na*. ^ is possibly a form of \wedge = *ko*. None of these forms are Egyptian.

A fragment of a clay *pylos* was discovered at Enkomi with inscriptions in the ordinary Cypriote script painted on it in red.³ It was found outside the

¹ *Excavations in Cyprus*, p. 17, Fig. 32.

² See the forms of this sign from Golgoi in Kollitz's table (*Dialekt-Inschriften*, Vol. 1).

³ *Excavations in Cyprus*, p. 3, Fig. 2.

dromos of a tomb, and there is therefore no evidence as to its date. Its interpretation presents great difficulties.

Still more enigmatic, however, are the signs engraved on three clay balls¹ (Fig. 14, Nos. 765, 766, 768), which, though not found actually in a tomb, lay in such proximity to it as probably to date from the same early period. Dr. Murray compares the signs on one of them with the conventionalised pictographic or hieroglyphic script of Crete, but at most there is only analogy between the two. We may perhaps trace the degradation of an animal's head in the first sign of No. 765, or a human palm in the fifth sign. A few simple forms approach

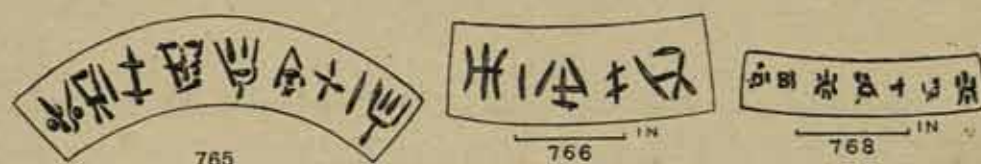


FIG. 14.—INSCRIPTIONS ON CLAY BALLS FROM ENKOMI.

those of the Cypriote syllabary, *e.g.*, the *pa*, *si*, *lo*, and *ta*. The newly discovered linear script of Knossos also presents about the same number of resemblances, and we see in Nos. 765 and 766 vertical lines introduced with the apparent purpose of dividing words as on the Cretan tablets. In the present state of our knowledge of the scripts of the Mycenaean Age it is unsafe to go beyond these general comparisons.

The time is past when the evidence of the existence of the Cypriote syllabary in Mycenaean times can excite surprise. The clay archives of the Palace of Knossos conclusively show that in the Aegean world there existed at least as early as the fifteenth century B.C. a highly developed form of linear script containing a series of forms practically identical with those in use down to a much later date by the Greeks of Cyprus.

Sufficient evidence has already been given of the general contemporaneity of the Mycenaean remains at Enkomi and other Cypriote sites with the Aegean relics found in Egyptian deposits at Tell-el-Amarna, Gurob, and elsewhere, and belonging to the latter part of the Eighteenth and the beginning of the Nineteenth Dynasty. But over and above these Egyptian comparisons a very valuable indication of the early date of these Cypro-Mycenaean tomb-groups is supplied by a negative phenomenon of great significance. Iron here is either altogether absent or only sparsely employed almost as a precious metal. "Not only," writes Dr. Murray, "is iron scarce, but wherever it does occur it is associated with marks of respect, such as being mounted with an ivory handle or knob" (p. 25). Bronze implements were otherwise universally in use at the date of these sepultures. Such tentative use of the new metal as is found is characteristic of the first beginnings of the transitional period that precedes the true Iron Age. The incipient use of iron for

¹ p. 27, Figs. 58, 59, 60.

ornamental purposes has been noted among the later remains at Mycenæ itself. In the shaft-graves of the Akropolis iron is altogether absent, while, on the other hand, in the graves of the lower town, marked by the first appearance of the fibula, a few iron finger-rings occurred.

Yet between these latest Mycenæan deposits in Greece itself and the earliest monuments of archaic classical art that go back to about 700 B.C. there intervenes a pure Early Iron Age of some centuries' duration, characterised by the various phases of Geometrical art. It is the same in Cyprus itself. In the tombs of the so-called "Cypro-Phœnician" period, which covers the interval in the island between the predominance of Mycenæan culture and the beginnings of classical art, the use of iron for cutting purposes has become general. This period, which, according to Dr. Ohnefalsch Richter, extends from the twelfth to the seventh century B.C., shows a geometrical style in some respects parallel to that seen in the Dipylon cemetery and elsewhere in contemporary Hellas. A special product

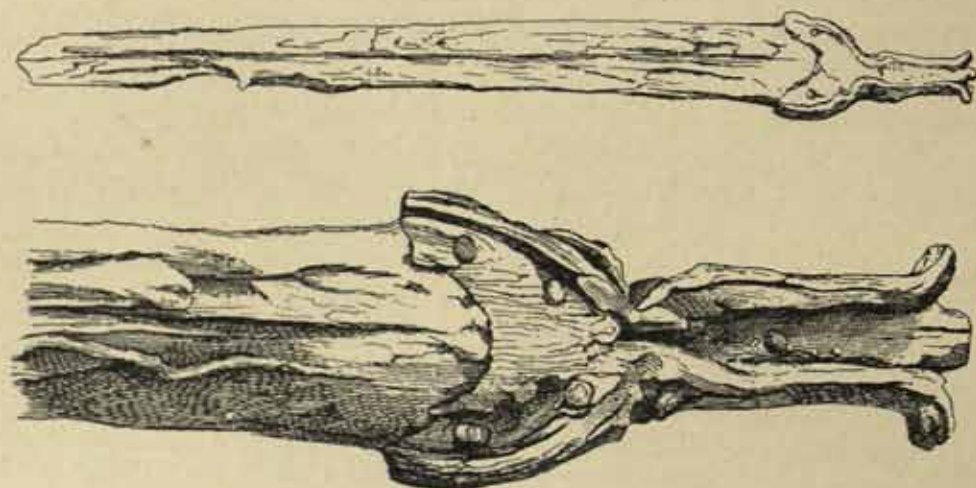


FIG. 15.—IRON SWORD FROM CURIUM.

of this Cypriote Iron Age is a form of sword (Fig. 15),¹ which is simply a translation into the new metal of a bronze form belonging to the close of the Mycenæan period² in Greece. The type is of northern importation and foreign to true Mycenæan tradition. The great interest, indeed, of this class of swords is that though in their earliest form themselves straight-sided, they were the forerunners of a widespread European race of bronze swords with leaf-shaped

¹ Found at Curium; in the possession of Dr. Julius Naue (Undset, *Forhandlinger i Videnskaps Selskabet*, Christiania, 1886, No. 14). For another from Marion, see Helbig, *Hom. Epos*, p. 130, note 5.

² This is shown by the occurrence of a sword of this type in the Bronze Hoard No. 1, from the houses explored by Dr. Tsountas outside the Akropolis of Mycenæ (Tsountas, *Ἐκ Μυκηνῶν*, 'Εφ. Ἀρχ., 1891, p. 26). A similar bronze sword was found in the "Cyclopean House" near the so-called "Agora" at Mycenæ, explored by Dr. Schliemann (*Mycenæ*, p. 144, Fig. 221). Another from Olympia is described by Sophus Müller (*Die Europäische Bronzealters Oprindelse*, p. 325, Fig. 27).

blades, which may be traced from Hungary to Scandinavia on one side,¹ and on the other through Gaul to the British Islands.² The fact that the Cypriote iron form belongs to the earlier straight-sided type itself argues a considerable antiquity, which is enhanced by the Mycenaean associations in which its immediate prototype in bronze is found.

That the general use of iron was diffused in Cyprus at a very early date is an almost inevitable inference from the close relations in which the island stood to the neighbouring Syrian coasts,³ which were in all probability the earliest centres of iron-working. Vessels of iron, some of them with silver handles, seem to have been already imported into Egypt from Syria and Canaan as early as Thothmes III's time (c. 1503-1449 B.C.)⁴ and the Rutennu who owned Damascus, so famous in after times for its tempered steel, brought to this Pharaoh a tribute of unwrought iron and arms and chariots of the same metal. The invading Israelites, as we learn from the books of Joshua and Judges, found to their cost that the use of "chariots of iron" was already general among their Canaanite foes. In Northern Syria the exceptionally early use of iron in war is also well authenticated. The Assyrian King Tiglathpilezer (Tuklat-Pal-Asar) I, who invaded the North Syrian region of Commagene (Kummuk) in 1130 B.C., with his "brazen-wheeled" chariots, carried off from that and the adjoining countries vast spoils of iron as well as bronze.⁵

There is every reason for supposing that in Cyprus the beginning of the Iron Age did not lag behind that of the neighbouring mainland regions. Yet the great bulk of the Mycenaean tombs of Cyprus belong to the pure Bronze Age, and in only a few cases is there evidence of that incipient acquaintance with iron in which it is regarded almost as "a precious metal." In view of this concordant archaeological evidence, it seems impossible to bring down the latest of these Cypro-Mycenaean interments beyond at most the twelfth century B.C. But in order to satisfy the views put forward in the British Museum publication before us it would be necessary to suppose that the Bronze Age of Cyprus, so far from reaching its term somewhat earlier than that of Greece and Italy, came down five centuries later, to the date, namely, of the François vase and to the borders of the period of fully developed classical art. It is superfluous to point out that conclusions such as this are incompatible with the best ascertained archaeological data as to the gradual succession of distinct phases of civilisation in the East

¹ See Undset, *Études sur l'Âge de Bronze en Hongrie*, i, p. 148.

² See J. Evans, *Ancient Bronze Implements of Great Britain*, p. 273 seqq.

³ Mr. J. L. Myres remarks (*Cat. of the Cyprus Museum*, p. 21), "The very early appearance of iron and its great frequency at this time are a measure of the close intercourse of Cyprus with the Syrian coast, the only area in which iron-workings may be suspected to be earlier. Cyprus has considerable masses of iron ore of fair quality, and there is evidence that they were discovered and worked as soon as the knowledge of the metal extended."

⁴ Birch, in Wilkinson's *Ancient Egyptians* (1878 edition), vol. ii, p. 251; Pierret, *Dict. Archéologique Égyptien*, p. 104; Th. Deveria, *Mélanges d'Archéologie Égypt. et Assyri.*, i, 2; W. Max Müller, *Asien und Europa*, pp. 153, 154.

⁵ J. Menant, *Annales des rois d'Assyrie*, pp. 36, 37. Cf. J. de Morgan, *Les premiers Âges des Métaux dans l'Arménie Russe*, pp. 200, 201.

Mediterranean basin. The long centuries of the iron-using Geometrical Period alike in Cyprus and in Greece proper are either left out of account or a Mycenæan Bronze Age is interposed between them and classical times. It is impossible to conclude without an expression of regret that views so subversive of the fixed points of antiquarian science should receive encouragement from a quarter which, on more purely classical ground, we have all been accustomed to regard as authoritative.

A CLASSIFICATION OF THE STONE CLUBS OF BRITISH NEW GUINEA.

BY ALFRED C. HADDON, Sc.D., F.R.S., University Lecturer in Ethnology,
Cambridge.

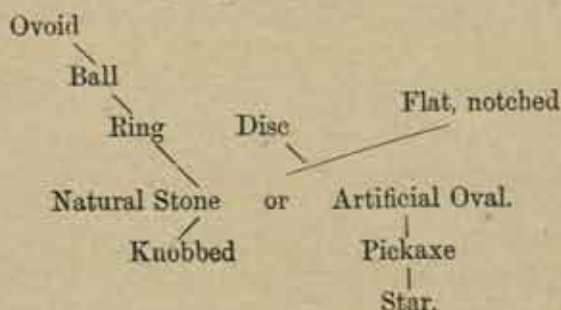
[WITH PLATES XIX TO XXIII.]

DURING my recent short visit to British New Guinea I have had the opportunity of seeing a considerable number of stone clubs. The Hon. D. Ballantine, of Port Moresby, kindly gave me free access to his collection, which is probably unrivalled among private collections in completeness, and it has, further, the inestimable advantage of nearly every specimen being marked with a precise and accurate locality. Such being the case, I have not hesitated to base this tentative classification of the stone clubs of British New Guinea on the specimens in Mr. Ballantine's collection; but I have not absolutely confined my studies to that collection, and I have alluded to a few types which are not—or were not—there represented.

The figures which illustrate this paper are sketches from photographs, taken after I left Port Moresby by Mr. B. W. Bramell, of specimens from Mr. Ballantine's collection.

In offering this classification to my ethnographical colleagues I do not pretend to have exhausted the subject, as that would entail a prolonged study of specimens in Australian and European museums; but I shall feel satisfied if I have assisted museum curators to a better comprehension of the forms of clubs and of their distribution in British New Guinea.

At the present day, a classification is not considered perfectly satisfactory unless it is at the same time phylogenetic. I cannot profess to satisfy this demand; all that I can do is to suggest that a few divergent series can be established, each of which emerges by easy gradations from a generalised group of "natural stones." The following diagram explains my meaning:—



The order in which these series are described is of little consequence, but on the whole, that adopted below appears to me to be as convenient as any other, and it will be observed that it deals with the simpler forms first.

- I. NATURAL STONE CLUBS, or CLUBS WITH A SLIGHT AMOUNT OF WORKING.
- II. RING CLUBS.
 1. Unflanged; 2. Flanged.
- III. BALL CLUBS.
 1. Unflanged; 2. Flanged.
- IV. OVOID CLUBS.
 1. Short and thick; 2. Long and tapering; 3. Cylindrical; 4. Barrel-shaped; 5. With an equatorial swelling.
- V. DISC CLUBS.
 1. Oval; A. Thick; B. Thin; 2. Various shapes; A. Oblong; B. Triangular; C. Diamond; D. Lakatoi; 3. Circular; A. Biconvex, thick; B. Biconvex, thin; C. Flattened, thin; D. Flattened, thin, and flanged; E. Undulating.
- VI. FLAT CLUBS WITH NOTCHED EDGES.
 1. With a single row of notches, no flange; 2. With two rows of notches; A. Unflanged; B. Flanged.
- VII. KNOBBED CLUBS.
 - A. Unflanged knobbed clubs. 1. Natural stone clubs, or clubs with a small amount of working. 2. Knobbed ring clubs; *a*. One row of knobs; *b*. Three rows of knobs. 3. Knobbed ball clubs with four rows of knobs; *a*. More or less spherical; *b*. Oval; 4. Depressed oval knobbed clubs. *a*. Four rows of knobs; *b*. Five rows of knobs; *c*. Six rows of knobs; *d*. Seven rows of knobs; *e*. Eight rows of knobs. 5. Human-head knobbed club; 6. Ovoid knobbed clubs; *a*. Knobs disposed vertically; *b*. Knobs disposed obliquely; *c*. Barrel-shaped.
 - B. Flanged knobbed clubs. 1. One row of knobs; 2. Two rows of knobs; 3. Three rows of knobs; 4. Four rows of knobs; 5. Five rows of knobs.
 - C. Wooden knobbed clubs.
- VIII. PICKAXE CLUBS.
 1. Pickaxe clubs with two points; 2. Pickaxe clubs with four points; A. Unflanged; B. Flanged; 3. Complex pickaxe clubs.
- IX. STAR CLUBS.
 - A. Unflanged.
 - B. Flanged. 1. Four rays; 2. Six rays; 3. Seven rays; 4. Eight rays; 5. Ten rays.
 - C. Complex flanged.

I would like to take this opportunity of acknowledging my indebtedness to Mr. Ballantine for much kindness and for giving me considerable information respecting the clubs of British New Guinea, and also to my colleague Mr. A. Wilkin for helping me in the measuring of the clubs.

The number or letter in brackets which follows the reference to the figure refers to the number of the specimen in the Ballantine collection. All the measurements are given in millimètres. At the end of the description of each club I have given the measurements of the stone head.

The Roman numbers in brackets after the localities refer to the districts I have adopted; each district is defined in the "Notes on the Geographical Distribution of Stone Clubs in British New Guinea" at end of this paper.

There can be little doubt that primitive man early learnt to employ stones for offensive as well as for industrial purposes. In most inland places in a state of nature stones are rarely to be found except in river beds, and there they are usually rounded. Occasionally, river pebbles are found with a natural perforation through them; such a stone only requires to have a stick thrust through the hole to be converted into a stone club. I do not remember to have seen a Papuan stone club with a head entirely ready-made by nature, but I have seen several clubs the heads of which were water-worn stones through which a hole had been artificially bored. Amongst a number of rude clubs from the Papuan Gulf in the Ballantine collection I have selected one or two for special description.

I. NATURAL STONE CLUBS, OR CLUBS WITH A SLIGHT AMOUNT OF WORKING.

In Fig. 1 (A) we have an illustration of a roughly quadrangular quartz stone with rounded angles. The somewhat flattened surfaces of this and the following specimen appear to me to be natural and not artificial. It is artificially perforated by a large hole. The thin handle is 890 mm. long and tapers below and ends bluntly. Toaripi ("Motumotu") (II). (Length 80, breadth 70, height 50.)

Very similar in shape to the former is a white, gritty stone club, Fig. 2 (B), which has become blackened. There are ten fine radial lines scored on the upper surface. The straight, rough handle is 900 mm. long and has a rounded end. Siro (II). (Length 70, breadth 70, height 50.)

A light grey, gritty stone club, Fig. 3 (C), has a somewhat elongated reniform contour and is painted with pink and white pigment. The perforation is the only sign of workmanship in the stone. The rude, straight handle is 770 mm. long, and a strip of bark cloth is wrapped between the stone and the handle. Wōmai (II). (Length 128, breadth 90, height 45.)

Another stone, Fig. 4 (D), has an irregular and undulating reniform contour. I think this is also an entirely natural stone, the surface of which has been ruddled. There is a small, deep, natural depression in this stone. Ten irregular, artificial, vertical grooves have been filled in with lime. The short (660 mm.) thin handle has a uniform thickness. Wōmai (II). (Length 90, breadth 65, height 45.)

An irregular, flattened, oval club (E) has been roughly ground down, but several flaws have been left on the under surface; the sides have their edges somewhat squared. There are eleven nicks at one end and fourteen at the other. The short (560 mm.) straight handle has a little rough cane plaiting at the stone. Siro (II). (Length 115, breadth 75, height 32.)

II. RING CLUBS.

I employ the term "ring clubs" for those which have more or less circular or oval stones; these are generally small in size, and as the perforation is usually large, they have a ring-like appearance. Some of these appear to be natural stones, or they may be slightly or unmistakably worked.

1. UNFLANGED RING CLUBS.

An oval, apparently naturally rounded pebble, with a worn surface (4), has had a large hole bored through it. The handle (885 mm.) is straight and ends abruptly; the stone is jammed on, and there is a simple band pattern incised round the handle a short distance below the stone. Opau (II). (Length 75, breadth 63, height 46.)

One example, Fig. 5 (F), of a dark igneous rock may well be a natural stone, but it has probably been roughly ground down. Looked at from above, it is roughly triangular in contour, with well-rounded angles. The short (730 mm.) thick handle tapers slightly at each end, and has a blunt end. There is some coarse cane plaiting below the stone. Wōmai (II). (Length 87, breadth 84, height 30.)

An undoubtedly worked oval club, Fig. 6 (G), is biconvex in section, and it has a slight suspicion of an edge. The thick handle is oval in section, 1 mètre long, and terminates in a blunt end; there is coarse cane plaiting at the stone, and it is decorated with cassowary feathers. Moveave (II). (Length 118, breadth 98, height 50.)

Fig. 7 (H) is a somewhat similar stone, with rounded sides. Originally it was a white, gritty stone, but the general surface has been blackened. The lower portion of the perforation has been recently enlarged, and so it is whitish. There are two deep and wide terminal notches, which have been ruddled, and five smaller notches on one side and six on the other. The latter are traversed by a longitudinal, horizontal groove. All the lateral notches show the light colour of the stone except two terminal notches, which are reddened. The thick handle tapers at each end, and the grip terminates with three raised rings; it is 720 mm. in length. Oraruru (II). (Length 98, breadth 75, height 50.)

2. FLANGED RING CLUBS.

There is in the Australian Museum, Sydney, a ring club with a small flange, Fig. 8; it is painted with transverse white lines, and may have come from the Papuan Gulf.

III. BALL CLUBS.

1. BALL CLUBS WITHOUT A FLANGE.

I allocate to this group those clubs which have been artificially rounded so as to produce a more or less spherical ball. Most frequently the stone is more orange-shaped than spherical. Intermediate forms may be seen between this group and the "ring clubs."

The diameter of the majority of these clubs is greater than the height, and they are generally approximately circular in horizontal section, but some are distinctly oval. Very rarely the diameter and the height are approximately equal, and as rare is it to find one in which the diameter is less than the length. Clubs of this kind pave the way to the next group. Frequently the stones are simply jammed on to the handles.

Fig. 9 (1) is a ball club in which the diameter is considerably greater than the height. The handle is long (1,245 mm.), crooked, of uniform thickness, and ends abruptly; there is cane plaiting at the stone. Hogere (IV). (Diameter 85×76 , height 56.)

A grey and white mottled stone, Fig. 10 (2), has been carefully shaped; it is slightly biconical rather than spherical. The long (1,257 mm.) handle tapers below to a stout point, and there is plaited cane at the upper end. Adori (IV). (Diameter 88, height 67.)

The stone of Fig. 11 (3) has been jammed on to a rude handle (763 mm.), which ends bluntly at the grip. Siviki (II). (Diameter 70, height 52.)

A club, Fig. 12 (5), which looks as if it were intended to be spherical, is hafted on to a very long (1,390 mm.) thick handle, which ends abruptly. There is fine cane plaiting above and below the stone, which expands in a saucer-shaped manner close to the stone. Vafare (IV). (Diameter 70, height 62.)

A club in which the height of the stone is greater than the diameter is seen in Fig. 13 (6); it is a grey stone with lighter inclusions. The very long thin (1,400 mm.) handle ends below in a cone. Iaritari (IV). (Diameter 75, height 62.)

There is in the Cambridge Museum a broken biconical stone with an equatorial flat band, 15 mm. broad. Mer, Torres Straits (I). (Diameter 105, height 67.)

2. FLANGED BALL CLUBS.

There is a well marked variety of the "ball club" in which a small flange is present. The three examples in the Ballantine collection come from Hogere, Havere, and Iovi—that is, from the district between the Astrolabe Range and the Main Range.

A typical flanged ball club, Fig. 14 (7), is a rough stone in which the diameter exceeds the height. It is mounted on a rude handle 990 mm. long. Hogere (IV). (Diameter 85, diameter at flange 52, height 65.)

IV. OVOID CLUBS.

The clubs of this group vary so much in form, but within comparatively small limits, that it is difficult to subdivide them. In the great majority of specimens the sides are convex. These clubs vary by insensible gradations from short and thick to long and tapering. This kind of club has been called the "emu's egg club." In a few clubs with nearly straight sides the ends may be abruptly squared or they may taper in the usual manner. The ovoid clubs with well made and highly polished stones appear to be almost confined to the district between the Astrolabe Range and the Main Range; but unpolished ovoid clubs occur all round the Papuan Gulf, up the Fly River (*cf.* D'Albertis, *New Guinea*, II, p. 86), and even among the Tugeri head-hunters who live on the coast beyond the Dutch boundary.

1. SHORT AND THICK.

A short and thick form of ovoid club with convex sides is seen in Fig. 15 (10). The very long (1,680 mm.) and rather thin handle tapers below and ends in a cone. Taburi (IV). (Diameter 80, height 100.)

2. LONG AND TAPERING.

A long and tapering form of ovoid club is illustrated by Fig. 16 (11). The extremely long (1,740 mm.) handle resembles that of the last, but it is much thicker, and there is cane plaiting above and below the stone. Taburi (IV). (Diameter 77, height 128.)

3. CYLINDRICAL.

A nearly straight-sided type with truncated ends, Fig. 17 (8), is fitted on to a long (1,422 mm.) smooth handle, which ends in a blunt cone. Korohi (IV). (Diameter 71, height 94.)

4. BARREL-SHAPED.

Fig. 18 (9) has a somewhat similar form to the last, except that it tapers off gradually at each end. The long (1,491 mm.) thick handle ends abruptly and is encircled by a band of plaited cane at the grip to prevent further splitting; there is plaited cane above and below the stone, and the club is further decorated with a bunch of parrot feathers. Taburi (IV). (Diameter 65, height 106.)

5. WITH AN EQUATORIAL SWELLING.

The Ballantine collection has two specimens of ovoid clubs with a central or equatorial swelling, which come from Taburi and Maiari (Havere) respectively.

An example, Fig. 19 (12), of this well marked type is mounted without cane-work, on a rough handle 820 mm. long. Taburi (IV). (Diameter 71, height 92.)

A very rare club, Fig. 20 (13), belongs essentially to the barrel type (*i.e.*, Fig. 22), but it has an oblique, central, band-like swelling on which there are four flattish surfaces. The perforation is wider than in the last. It is jammed on to a long (1,110 mm.) slender handle that tapers below, but does not end in a point. It is an open question whether this a distinct type of club, or merely a broken and reground specimen of another group. Maiari (IV). (Diameter 64, height 74.)

V. DISC CLUBS.

All stages can be found in this group from slightly worked slabs of stone which may be irregularly oblong, oval, or circular in contour, to the finely polished, thin, flattened, flanged circular discs.

1. OVAL DISC CLUBS.

A. *Thick.*

A thick, distinctly biconvex, oval club with a blunt edge, Fig. 21 (58), has one end broader than the other. The rude handle is 680 mm. long, and has cane plaiting

above and below the stone; it terminates in a small button. Okuma (Kabadi) (III). (Length 103, breadth 77, height 31.)

A moderately thick club, Fig. 22 (59), is flattened above and below; one end is broader than the other, and there is a blunt edge. The handle is 865 mm. long, and tapers at each end. It is decorated by a band of a simple incised pattern and has three raised bands below the grip. There is plaited cane at the stone. Maipua (II). (Length 123, breadth 92, height 24.)

Somewhat similar to this is an oval club in the same collection, with flattish sides and a slight edge. It is somewhat flat above and below. The short (500 mm.) rude handle has a uniform thickness, and there is bark cloth and coarse plaited cane at the stone. Karama (II). (Length 127, breadth 81, height 21.)

A finely worked stone, Fig. 23 (60), has one end more obtuse than the other, and one side straighter than the other; the edge is fairly sharp. The handle tapers to a point. It is 1,155 mm. long. There is rough cane plaiting above and below the stone. Wōmai (II). (Length 185, breadth 104, height 36.)

A broken stone, Fig. 24 (61), without a handle has a very irregular ellipsoidal contour and a sharp edge. Orokolō (II). (Length 204, breadth 85, height 25.)

B. *Thin.*

There is in the Ballantine collection a very large, flattened, oblong-oval club, Fig. 25 (62), with sharp edges. The rough handle is 832 mm. long. It tapers at each extremity and ends squarely. Deduri (Hogere) (IV). (Length 228, breadth 167, height 17.)

An interesting disc, Fig. 26 (63), was originally part of a very much larger disc, as on one side there is the remains of the original central hole, which can be seen in the illustration. It has not only been refashioned into an irregularly oval disc, but it has been ground afresh on both surfaces so as to form a flattened plate with sharply bevelled edges. There is a short (540 mm.) rude handle which tapers at each end. The stone is simply jammed on to the handle. Karama (II). (Length 121, breadth 88, height 11.)

2. DISC CLUBS OF VARIOUS SHAPES.

This division will doubtless be extended in the future, but at present it is hardly necessary to make a distinct group of every vagary of form.

A. *Oblong.*

More distinctly oblong in contour is a small club, Fig. 27 (64), with rounded corners. The sides are almost squared, and the ends have sharp edges. The handle tapers and ends in a blunt point below; it is 990 mm. long and has fine cane plaiting above and below the stone. Wōmai (II). (Length 123, breadth 82, height 20.)

In the Ballantine collection is a club (65), which, so far as I am aware, is unique. The stone is an old adze blade made of a limestone, which is full of fossil shells. It has a sharp edge at both ends. There is a long (1,357 mm.) stout

handle, which tapers at each end. It is pointed below, and there is plaited canework above and below the stone. Vailala (II). (Length 280, breadth 125, height 27.)

B. *Triangular.*

The Ballantine collection contains two examples of this rare type. A small example, Fig. 28 (66), is almost an equilateral triangle with rounded angles. It is flat above and below. The rude handle (715 mm.) is squared below. Karama (II). (Length of sides 130, 125, 125.)

A larger specimen, Fig. 29 (67), is almost a right-angled triangle, but the contour is irregular. It is plano-convex on one side and has sharp edges. The palmwood handle is probably not original. Orokololo (II). (Length of sides 220, 170, 180.)

C. *Diamond.*

There is in the Australian Museum, Sydney, a diamond-shaped stone head (Fig. 30), which, from the characteristic painting of its surface, may come from the Gulf district; it measures about 160 × 130 mm. in its greatest diameters.

D. *Lakatoi.*

This is a rare form of club, in which the flat stone has the form of a more or less elongated conventional heart—that is, with curved sides, one end pointed, and the other notched or emarginate, thus resembling the characteristic sail of a *lakatoi* trading canoe. Fig. 31 is a sketch of one that came from the Gulf District.

3. CIRCULAR DISC CLUBS.

A. *Biconvex, Thick.*

There is a circular disc club of considerable thickness, which is a rare form but was not represented in the Ballantine collection.

Fig. 32 is a well-worked stone. The handle (706) is of thick ratan, the ends are cut square, the grip is decorated with simple incised patterns, there is a string loop. Cf. also Pl. XXII, Fig. 1, Yam Island, Torres Straits (I), (diameter, 103; thickness, 28).

B. *Biconvex, Thin.*

The most frequent type is a biconvex disc with a sharp edge. Those clubs are very common and vary considerably within certain limits as to size, contour, and thickness. I have selected for illustration a typical example, Fig. 33 (68). The handle (850 mm.) tapers below and terminates in a cone. Below the stone is some plaited cane, as well as some strips of dried leaves and half a dozen turns of a string of human hair. The handle is surmounted by a bunch of feathers of the cassowary and Torres Straits pigeon. Gasiri (IV). (Diameter 147, thickness 20.)

The following abbreviated notes on 53 of the numerous circular disc clubs in the Ballantine collection will give a general idea of those that are characteristic of the Central Division (District IV) of British New Guinea.

1 specimen (diameter 101, thickness 18); handle (1,003) tapers to a blunt end, polygonal cane plaiting above the stone, bunch of parrot's feathers. This club, though bought on the coast, came from inland.—Tupuselei.

6 specimens (diameter 125–155, thickness 15–20); all handles (803–854) taper below, five end in a cone, one in a point; all have plaited cane above the stone; four are decorated with feathers, and two with strings of human hair.—Gasiri.

16 specimens (diameter 113–187, average thickness 15–20), few are really circular; all the handles (687–982), taper below, and fifteen terminate in a cone and one in a point; all have cane plaiting above the stone; seven have feathers and five human hair.—Hogere.

12 specimens (diameter 114–178, thickness 15–20); many are irregular and almost oval in contour. Handles (710–1,200), some taper gently to the stone, but all taper to the end; three have pointed ends at the grip, several have conical ends, and a few have the ends variously carved; all have more or less cane at the stone end, but only one has feathers. The handles average a considerable length.—Eaha.

3 specimens (diameter 128–168, thickness 17–18); handles (666–922) end in a cone, one with polygonal plaited cane above the stone, and one with feathers.—Favere.

15 specimens (average diameter 115–150); handles range from 645–865; most of them end in a cone.—Behind the Astrolabe Range.

C. *Flattened, Thin.*

A distinct type of disc club is one in which the disc is very much flattened above and below, Fig. 34 (69), and the edge is sharp. There is a black palmwood handle (815 mm.), which has a blunt point below. There is plaited canework at the stone. Boura (IV). (Diameter of disc 152–162, thickness 11.)

A remarkably large disc of the same type, Fig. 35 (70), has an irregular contour. The thick handle (817 mm.) tapers above and below and ends in a cone. There is cane plaiting above and below the stone. Hogere (IV). (Diameter of disc 207–226, thickness 16.)

D. *Flattened, Thin, and Flanged.*

Another beautiful type of disc club, Fig. 36 (71), is one with a flattened surface very similar to the last type, but provided with a low but distinct flange. The handle (770 mm.) has some incised carving below the grip and cane plaiting on each side of the stone; this plaiting is finished off above and below by a raised collar. Toaripi ("Motumotu") (II). (Diameter 165 × 155, average thickness 15, thickness at flange 25.)

E. *Undulating.*

In the Ballantine collection is an approximately circular club, Fig. 37 (72), which belongs to the thin biconvex group. Instead of being flat, it is undulating in

such a way that there are two slight lateral depressions—in other words, the club is somewhat saddle-shaped; it has a sharp edge. The very thick handle (590 mm.) has a raised bead below the grip. Kukuku (Kěřma) (II). (Diameter 168 × 153, thickness 20.)

VI. FLAT CLUBS WITH NOTCHED EDGES.

This is not a very satisfactory group, but it serves very well for the present classificatory purposes.

1. CLUBS WITH A SINGLE ROW OF NOTCHES AND NO FLANGE.

A round, flat club, Fig. 38 (73), with a distinct edge is hafted on to a very thick handle (800 mm.), which tapers below and ends in a cone. The disc is painted in red and white with four groups of curved lines, and the notches are similarly coloured. Kěřma (II). (Diameter 139–142, thickness 12; notches 4 mm. deep and 34 in number.)

An oval, thick club, Fig. 39 (74), is similarly coloured. The handle (700 mm.) is thick and straight. Kukuku (Kěřma) (II). (Diameter 152 × 130, thickness 25; notches 5 mm. deep.)

Fig. 40 (E 75) is an irregular, flattened, oval club which has been roughly ground down, but several flaws have been left on the under surface; the sides have their edges somewhat squared. There are eleven notches at one end and fourteen at the other. The short (560 mm.) straight handle has a little coarse plaiting at the stone. Siro (II). (Length 115, breadth 75, thickness 32.)

In the Ballantine collection is a flattened oval club, Fig. 41 (76), with eleven short, nearly equal, blunt points, which are mostly set askew, owing to the interspaces between them being cut obliquely; it shows traces of red and white paint. The thick, tapering handle (670 mm.), ends in a blunt point. The grip is scored with encircling lines. Kěřma (II). (Diameter 108 × 129, thickness 37.)

A round, flattish club, Fig. 42 (T 77), may as well be described here. Round the edge are fifteen stout knobs, 4–7 mm. in length. Corresponding to each of these, on both sides of the disc are two very low rounded knobs. This club may very well be considered as a greatly reduced variety of the depressed knobbed group. The thick, straight handle (660 mm.) ends in a blunt point. Siro (II). (Diameter about 100, thickness 26.)

2. CLUBS WITH TWO ROWS OF NOTCHES.

A. *Unflanged.*

An oval, thick club, Fig. 43 (S), without a flange has two rows of twenty-eight notches. The knobs are from 3 to 8 mm. long. There is a rough, crooked handle 810 mm. long. Karama (II). (Diameter 100 × 85, thickness 40.)

B. *Flanged.*

A flattened, oval club, Fig. 44 (78), has a distinct flange. There are fourteen broad, very irregular teeth. The long (1,421 mm.) thick handle has a blunt point

at each end. Eaha (IV). (Diameter 108×123 , thickness 30; diameter of flange 53; thickness of flange 53.) There are several examples of this type in the collection.

VII. KNOBBED CLUBS.

The knobbed clubs constitute a large and complicated group. For the sake of convenience I have classified them as follows, but I would again warn the reader that this arrangement of manufactured objects into groups is very largely empirical, and examples can readily be found which it is difficult to place within a rigidly defined class.

A. UNFLANGED KNOBBED CLUBS.

1. NATURAL STONE CLUBS OR CLUBS WITH A SMALL AMOUNT OF WORKING.

In the Ballantine collection are several clubs from the Papuan Gulf which are either natural stones or are stones which have been ground to a variable extent. These have been incised to a greater or less depth. When the scores are shallow they produce a chequered surface, as in Fig. 45; in Fig. 46 they are deeper; but it is only when they have a considerable depth and form V-shaped grooves that the club possesses a knobbed appearance, as in Fig. 47. The last clubs pave the way to the typical unflanged knobbed club. We have here a distinct series which fits on to the "natural-stone" clubs, but I do not assert that this represents the actual evolution of this group of clubs. It may very well be that the clubs which are before me as I write are as it were degraded forms and merely indicate the laziness or indifference of the makers.

The first of this series, Fig. 45 (I), is a soft, gritty, light grey rock, somewhat ovoid in form, which has probably been slightly ground down. It has been incised with ten to eleven irregular, undulating, horizontal lines and about thirty still more irregular, radiating lines. Some of the grooves are filled in with pink or white paint. The rough, crooked handle is 750 mm. long. Wōmai (II). (Length 93, breadth 60, height 40.)

Another example (K) is made of the same rock. It is quadrangular in form, with rounded angles. Possibly it is a natural stone very slightly worked. The incised lines are similar to those of the last club, but the horizontal lines are straighter. There are 8×30 squares. There are eight vertical pink bands, the incisions in the interspaces being whitened. The stout handle is 1 metre in length and tapers at each end. There is coarse cane plaiting above and below the stone. Wōmai (II). (Diameter 67×70 , height 41.)

An irregularly rounded club, Fig. 46 (L), has the appearance of being a natural stone that has been partially ground flat on the upper and lower surfaces. The incisions are deeper than in the previous clubs. They are 4×20 in number. The vertical lines are painted light red or white. The rude handle (820 mm.) ends bluntly below. There is coarse cane plaiting below the stone. Karama (II). (Diameter $85-92$, height 47.)

Fig. 47 (J) is an oval grey stone, thicker at one end than the other. A deep groove is cut round the upper and lower ends of the perforation. The upper one forms an incipient flange the other grooves are cut deep, the vertical being the widest and deepest. Thus distinct knobs are formed, their number being 5×16 . The smooth, straight handle (700 mm.) tapers inferiorly and has a bead below the grip. The plaited canework on each side of the stone is finished off above and below by a raised band. Wōmai (II). (Diameter 75×88 , height 40 and 50.)

An oval stone, Fig. 48 (41), has been carved so as to produce typical square or oblong knobs, which are irregular in size. There are eight in the vertical and nineteen in the horizontal rows. The longish (1,084 mm.) handle tapers very slightly at each end and ends bluntly. Vailala (II). (Diameter 72×76 , height 47.)

2. KNOBBED RING CLUBS.

All the following clubs have knobs which are distinctly rounded or prominent truncated rectangular pyramids, and differ markedly in character from the foregoing.

a. One row of knobs.

A small ring-like club, Fig. 49 (38), has thirteen low, elongated knobs, which extend across the edge of the stone. The thick, rude handle (780 mm. long) ends abruptly. The stone is simply jammed on to the handle. Wōmai (II). (Height 38, diameter 80.)

A club, Fig. 50 (39), of still ruder workmanship has twelve low rounded knobs, which do not extend across the edge of the stone. The irregular handle (905 mm.) tapers below, and the end of the grip is carved like a small dice-box. The rough cane plaiting by the stone is ruddled. The gritty stone has also been reddened above and below the knobs and in every alternate interspace. Opau (II). (Height 40, diameter 90; diameter between the grooves 80.)

b. Three rows of knobs.

A white quartz club, Fig. 51 (40), in the Ballantine collection is oval in horizontal contour and has three rows of knobs. Those of the central row are much the largest; the others are very low and rounded. The long handle (1,070 mm.) tapers below to a point. The stone is situated 122 mm. from the end. This part is covered with fine plaited cane and surmounted by a tuft of parrot's feathers. Owen Stanley Range. (Height 45, diameter 82×90 , height of central knobs 10-12, number of knobs 3×11 .)

3. KNOBBED BALL CLUBS.

A fine old club, Fig. 52 (40A), has large, rounded, widely separated knobs like the last. It has every appearance of being an old club. There are traces of red vertical lines between the knobs. The thick handle (780 mm.) tapers above and below. On each side of the stone there is neat cane plaiting which ends above and below in a raised band. The lower end of the handle is elegantly finished off with

two beads. Opau (II). (Diameter 94, diameter between the knobs 80, height 80, height of knobs 7, number of knobs 4×8 .)

Fig. 53 (42) is a large stone club with unequal, large, rectangular knobs. The thick, heavy, and unwieldy handle (1,425 mm.) tapers at each end. Above and below the stone there is cane plaiting, and the handle ends in a point. Keuru (Vailala) (II). (Diameter 113×87 , height 67; height of knobs up to 5 mm.)

These clubs may be round or oval in section. This group passes insensibly into the next group.

4. DEPRESSED KNOBBED CLUBS.

a. Four rows of knobs.

A depressed club (with the rectangular knobs so worn down as in most cases to be rounded) is seen in Fig. 54 (44). The handle tapers below to a point. The head end is decorated with cassowary feathers. It is 980 mm. long. Wōmai (II). (Diameter 100×106 , height 60; height of knobs 5–6, number of knobs 4×14 .)

b. Five rows of knobs.

The three clubs which I have selected as examples of depressed clubs with five vertical rows of rectangular knobs constitute a short series with regard to the prominence of the knobs, and more particularly of the central horizontal row.

The knobs of Fig. 55 (46) are of moderate size, those of the central horizontal row not being of much larger size than those of the contiguous rows. The handle is long (1,280 mm.) and heavy; it has a diameter at the upper end of 30 mm. which tapers slightly below. Keuru (Vailala) (II). (Diameter 87×95 , height 52; height of central knobs 5, number of knobs 5×13 .)

Fig. 56 (45) is a characteristic Papuan Gulf club of this group, with prominent knobs, the interspaces between which are painted alternately red and white. The very thick handle (600 mm.) tapers above and below. The grip is roughened by irregular horizontal incisions. Opau (II). (Diameter 111–113, height 63; height of central knobs 12, number of knobs 5×11 .)

An extreme form is seen in Fig. 57 (47). The knobs are oblong in form, and those of the central horizontal row are extremely prominent. The long (1,462 mm.), thick handle tapers above and below. On each side of the stone is a broad band of neat cane plaiting. The handle ends in a point. Keuru (Vailala) (II). (Diameter 131×125 , height 63; central knobs length 30, breadth 23, height 15, number of knobs 5×8 .)

c. Six rows of knobs.

A less depressed type with six rows of moderate-size, oblong knobs is seen in Fig. 58 (48). There are traces of red paint in the grooves. The third row of knobs is the largest. The handle tapers at each end; it is 930 mm. long. On both sides of the stone there is a band of neat cane plaiting, which at the extremity forms a

raised band. The handle below the grip is neatly finished off in a wedge, above which is a bead. Kéréma (II). (Diameter 111, height 75; height of knobs 5-7, number of knobs 6×12 .)

d. Seven rows of knobs.

A very characteristic variety of club (49) is very depressed. While still preserving the peculiar features of the type illustrated by Fig. 57, the first and fifth rows of knobs alone have a knob-like form; the others are more like ridges. The vertical grooves are painted red; the horizontal ones are alternately red or white. The thick handle is 660 mm. long and tapers below. There is neat cane plaiting above and below the stone; it is finished off below in a raised band. The handle terminates in a rounded knob. Opau (II). (Diameter 115, height 42, central knobs length 35, breadth 15, height 15, number of knobs 7×7 .)

Fig. 59 illustrates a somewhat similar specimen in the Australian Museum, Sydney. Number of knobs 7×12 .

Reverting to the more usual type of this group is club Fig. 60 (50). Its general contour is almost biconical. The long (1,180 mm.) rude handle tapers gently below to a blunt point. Keuru (Vailala) (II). (Diameter 105-93, height 71; height of centre knobs 9, number of knobs 7×10 .)

e. Eight rows of knobs.

A depressed club with eight rows of knobs is seen in Fig. 61 (51). The stone is flattened above and below. There are four vertical rows of knobs at the side of large size, and two rows of small, flat knobs on the upper and lower surface. Some of the largest knobs are cut in two vertically to make two knobs. The thick handle (850 mm.) tapers at each end and terminates in a blunt point. Vailala (II). (Average diameter 110, height 50; number of knobs $8 \times 15-24$.)

5. HUMAN-HEAD KNOBBED CLUB.

An unique knobbed club is seen in Fig. 62 (52). It has an irregular oval contour with a greater vertical height at the front end. There are from four to six vertical rows of knobs and sixteen horizontal rows. The rectangular knobs have had their edges worn down by age. Most of the grooves are more or less oblique. At the thicker end is an irregular rude face, the nose of which is merely a groove. The back of the "head" is compressed above and below. The grooves are coloured red and white and black. It is stated that the "face" end is used for hitting with. The thick, rough handle is 625 mm. long, and ends in a point. Kéréma (II). (Diameter 110×98 , height in front 66, behind 53.)

6. OVOID KNOBBED CLUBS.

I know of one or two clubs which in form belong to the ovoid group but which by virtue of their surface markings should be placed among the knobbed clubs.

a. Knobs disposed vertically.

One in the Ballantine collection, Fig. 63 (M), is made of a grey, friable, gritty rock. It is distinctly barrel-shaped, but one side is flattened. Low, square knobs are formed by the shallow incisions. The vertical lines are coloured pink or white, and the horizontal black. The handle (820 mm.) is very thick and tapers below to a blunt point; it suddenly becomes slender above to transfix the stone. Karama (II). (Diameter 71-60, height 83, number of knobs 6-7 \times 15.)

Another ovoid form, Fig. 64 (53), with straightish sides is tessellated with very numerous and very irregular squares and oblongs, separated by shallow grooves. The handle tapers at each end, but it is thickest nearer to the lower end, which terminates abruptly. It is 920 mm. long. Vailala (II). (Diameter 95, height 75, number of knobs 17 \times 32-34.)

b. Knobs disposed in oblique lines.

There is a beautiful type of knobbed ovoid club in which the low knobs are close together and disposed in oblique lines, so that there are, according to the size of the stone, from four to six knobs in a vertical series. The clubs vary in form from rounded to ovoid. The latter bear some resemblance to a fir-cone or pineapple. The handles may end in a point or in a cone. They are sometimes decorated with feathers. Inland from Cloudy Bay (VI). A specimen in the Australian Museum, Sydney, Fig. 65, illustrates this type very well.

c. Barrel-shaped.

Specimens of this group much resemble knobbed ball clubs, but the contour viewed from the side is more barrel-shaped, a typical example in the Australian Museum, Sydney, from the Papuan Gulf is seen in Fig. 66.

A very large rounded club, quite flattened above and below, is illustrated by Fig. 67 (43). The quadrangular knobs are of moderate size, but fairly prominent. They are disposed in from four to five vertical rows. The heavy, thick handle tapers at each end; it is 1,460 mm. long. Keuru (Vailala) (II). (Diameter 122 \times 128, diameter between knobs 108, height 80; height of knobs about 7, number of knobs 4-5 \times 18.)

B. FLANGED KNOBBED CLUBS.

The flanged knobbed clubs form a well-defined group. The flange is sometimes a very prominent feature in the club, or it may be but a narrow strip above and below the band of knobs. As a rule the lower flange has a slightly greater diameter than the upper. The knobs are disposed in a central or equatorial band. They are usually fairly uniform in size and position; typically each is pyramidal in form, rising from a square or oblong base and terminating in a blunt apex. The knobs are evidently formed from large barrel-shaped stone by the cutting out of deep vertical and horizontal V-shaped grooves. Of these the vertical are generally the widest and deepest; thus it results that the knobs usually have

the appearance of being disposed in vertical rows. The central perforation is usually very wide.

The term "pineapple" is often applied to this kind of club by residents in British New Guinea; as I consider the name inappropriate I have discarded it.

1. *One row of knobs.*

I have seen a flanged club with a single row of four very prominent rounded knobs. It might by some be regarded as a star club with four short rays.

Fig. 68 (54) of the Ballantine collection is a club with a large flange round the middle are four discs. The two largest are at the ends; that on one side is small, and that on the other is intermediate in size. It is possible that this is a pickaxe or star club which has been broken and subsequently ground down. The thin, rough handle (1,100 mm.) tapers below and ends in a knob. Eaha (inland from Hogere) (IV). (Diameter 62×60 ; height of flange 70, diameter of flange 48.)

2. *Two rows of knobs.*

This is not a large class, but I have selected four examples which illustrate various points.

A large, fine example, Fig. 69 (27), with large, vertically oblong knobs and deep flanges may be taken as a fair type. The handle is short (870 mm.), stout, and of slightly greater diameter towards the centre. The head end has a plaited cane lashing; the handle end terminates bluntly. Veifaa (Mekeo District) (III). (Height 94, height of band of knobs 44, diameter 87; diameter of upper flange 55, diameter of lower flange 50, diameter of centre 66; height of knobs 10, number of knobs 2×13 .)

Club Fig. 70 (28) has large, prominent knobs, which are squarish in section. The band of knobs is set obliquely with regard to the long axis of the club. In this and the following club, which also comes from Agi, the horizontal V-shaped groove is distinctly the deeper, contrary to the usual rule. The handle is fairly long (1,120 mm.) and tapers slightly at each end. There is fine cane plaiting above the stone. The handle ends bluntly. Agi (Main Range) (IV). (Height 80, width of band of knobs 45, diameter 102, diameter of flange 46, diameter of centre 70; height of knobs 15, number of knobs 2×11 .)

Another club, Fig. 71 (29), has numerous small knobs. It has a long handle (1,140 mm.), which tapers below, but has a blunt end. The plaited cane sheaths above and below the stone are produced into saucer-like expansions, which respectively embrace the upper and the lower flanges. This arrangement is, so far as I am aware, peculiar to clubs coming from the Agi, Wamai, and allied tribes who inhabit the region about the gap in the Main Range below Mount Bellamy; it is also found on the Upper Mambare River (VII) on the other side of the divide. Agi (IV). (Height 54, diameter 80, diameter of flange 44-46, diameter of centre 62; height of knobs 9, number of knobs 2×16 .)

A third club, Fig. 72 (30), is of an oblong oval in horizontal contour. There

are four knobs at each end and four on each side, the former being much the most prominent. The handle is moderately long (870 mm.), thick, and not straight. There is a rather sudden constriction for the grip, which has a blunt end. It is provided above and below the stone with coarsely plaited cane bands. Agi (IV). (Height 57, length 107, breadth 66; height of largest knobs 20, number of knobs 2×8 .)

I have in my possession a club of this group with small flanges and twelve knobs in each series, which I obtained in Torres Straits in 1888; the handle is short and thick.

3. *Three rows of knobs.*

A typical example, Fig. 73 (31), of this class has large teeth, which are not, however, quite uniform in size. The short (710 mm.), thick handle tapers slightly from the stone, but it has a blunt end. There is a little cane plaiting above. Amoamo (Mekeo District) (III). (Height 90, diameter 81, diameter of centre 53; height of knobs 15, number of knobs 3×8 .)

Club Fig. 74 (32) has deep flanges and widely separated prominent knobs, the interspaces between which have been painted red. The polished handle is 1 m. long and tapers below, but does not end in a point; 370 mm. from the head end is a band of four rows of punctures. Baidana (Kabadi) (III). (Height 105, diameter 85, diameter of flange 50, diameter of centre 54; height of knobs 15–20, number of knobs 3×9 .)

One example (33) is characterised by knobs of moderate size and very deep flanges. The rough, irregular handle is 1,110 mm. long; it is of fairly uniform thickness, and ends abruptly. The fine cane plaiting has the typical expansion above and below the stone, and it is decorated with cassowary feathers. Agi (IV). (Height 97, breadth of band of knobs 40, diameter 76, diameter of flange 42–45, diameter of centre 55; height of knobs 10, number of knobs 3×12 .)

4. *Four rows of knobs.*

A magnificent example (34) of this type occurs in the Ballantine collection. The knobs are of large size, and the flanges are well marked. The stout, straight, polished handle is 1 m. in length, and it tapers very gently from the stone, but has a blunt end. There is a cane lashing above and below the stone; the latter is jammed tight by several wooden and bone wedges. There is a string sling for carrying it. Eboa (III). (Height 128, width of band of knobs 82, diameter 103, diameter of upper flange 51, diameter of lower flange 57, diameter of centre 64–74; height of knobs 15, number of knobs 4×10 .)

A specimen in my own collection, Fig. 75, has irregular knobs of moderate size, the flange is very small (4–5 mm.). The polished handle is 825 mm. long and ends in a tapering blunt point; there is a little cane plaiting above and below the stone, and several wedges are inserted in the head end. Mekeo (III). (Height 82, breadth of band of knobs 70, diameter 76, diameter of flange 49; height of knobs 8–13, number of knobs 4×12 .)

5. *Five rows of knobs.*

A still finer club in the Ballantine collection, Fig. 76 (35), has five vertical rows of knobs. The thick handle (970 mm.) tapers from the stone and ends below in a blunt point; above it is sharply pointed. The cane plaiting above and below the stone is plastered with black beeswax, which gives a bevelled appearance to the stone. Baidana (Kabadi) (III). (Height 136, width of band of knobs 100, diameter 98, diameter of upper flange 63, diameter of lower flange 60, diameter of centre 70; height of knobs 12-15, number of knobs 5×13 .)

An example with five rows of small low knobs and deep flanges is found in Fig. 77 (36). The knobs in this specimen are very unequal in size. The short (750 mm.), smooth, straight handle tapers from the stone to a blunted end. There is a little cane plaiting above. Rarai (III). (Height 105, width of band of knobs 56, diameter 70, diameter of upper flange 46, diameter of centre 63; height of knobs about 4, number of knobs 5×19 .)

I have selected club Fig. 78 (37) as a type of a distinct variety which is characterised by numerous small knobs, those of the central row being considerably the largest. In this specimen the flanges are very narrow. The short (620 mm.), thick handle tapers very gently and has a blunt ending. The handle does not project beyond the stone. The latter is tied on by string to the handle in three places. Amoamo (III). (Height 77, width of band of knobs 61, diameter 83, diameter of centre 68; height of knobs 7-9, number of knobs 5×19 .)

6. *Knobs disposed in oblique lines.*

Mr. Ballantine has one or two clubs from near the Main Range, Central District (IV) in which the moderately, or quite, low knobs are disposed obliquely. These "flanged fir-cone clubs" are of beautiful workmanship and are usually carved out of a white or variegated quartzose rock; they are generally mounted on long handles. Fig. 79.

C. WOODEN KNOBBED CLUBS.

Although not coming, strictly speaking, within the scope of this study, I cannot refrain from referring to certain wooden clubs which resemble in form some flanged knobbed clubs.

Fig. 80 (55) is 1,015 mm. long. The height of the head is 130 mm., that of the band of knobs is 100 mm., the diameter of the head is about 62-55 mm., the height of the knobs is 12 mm., and their number is 7×7 . Kërëma (II).

Fig. 81 (56) is 980 mm. long. The height of the head is 107 mm. and that of the band of knobs 98 mm., the diameter is 67; the height of the knobs is 2-3 mm., and their number 9×18 . There is a lower flange only. Kërëma (II).

Fig. 82 (57) is 1,080 mm. long. The height of the head is 160 mm. and that of the band of knobs 120 mm., the diameter is 61 mm., the number of the flat knobs is 13×15 . There is a groove in the upper portion of the stick, which leads into a small hole that perforates the head. Kërëma (II).

VIII. PICKAXE CLUBS.

The clubs of this group fall naturally into two divisions—those with two points and those with four.

1. PICKAXE CLUBS WITH TWO POINTS.

What looks like a primitive kind of "pickaxe club" occurs in the Ballantine collection, Fig. 83 (N). It is an oval stone which appears to be largely a natural stone. It is somewhat flattened above. The broader end is worked into a small projecting blunt point; this end is also of less thickness than the other. It is painted with pink and white bands. The handle (910 mm.) is very rough. Wōmai (II). (Diameter 145×75 , thickness 37.)

A more typical pickaxe club, Fig. 84 (O), is flattened above and below and painted with red lines. The handle (980 mm.) ends in a blunt point, and bark cloth is wound round it above and below the stone. Wōmai (II). (Diameter 187×63 , thickness 33.)

One variety in the collection, Fig. 85 (14), has one side straight, while the other is convex. The ends are flattened and sharp-edged, but they have evidently been reworked, as the stone has there fresh surfaces. The coarse, stout handle (830 mm.) slightly tapers above only. Kērēma (II). (Diameter 203×64 , thickness 40.)

2. PICKAXE CLUBS WITH FOUR POINTS.

a. Unflanged.

Fig. 86 (16), without a flange, measures 149 mm. in length and 77 mm. in breadth. Korohi (IV).

b. Flanged.

A very small specimen in the Ballantine collection, Fig. 87 (15), has two short main points, the laterals being very short. There is a small flange. The handle (610 mm.) has cane plaiting above the stone. It tapers below and ends in a cone. Korohi (Hogere) (IV). (Length 102, breadth 56, height 36.)

The more usual type is flanged and has two long points and two very short laterals. One example, Fig. 88 (17), has the points squarish in section. The handle is long (1,030 mm.) and is provided with fine polygonal canework a long way above and below the stone; it tapers above and below, and there are three beads below the grip. A string handle is also present. Vadiri (Hogere) (IV). (Length 271, breadth 90, height 59.)

A variety, Fig. 89 (18), with moderately long terminals and somewhat shorter laterals approaches the "star club" in form. It has a very deep flange. The smooth handle (930 mm.) tapers above and below to a point. There is polygonal canework above the stone. Vadiri (IV). (Length 197, breadth 140, height 84.)

3. COMPLEX PICKAXE CLUBS.

Two-pointed pickaxe clubs are occasionally found with two small rays or knobs on each side.

IX. STAR CLUBS.

So far as my experience goes there are two classes of star clubs—those with and those without a flange.

A. UNFLANGED STAR CLUBS.

These clubs are characteristic of the Fly River district, and I have seen examples with four to ten points. I believe forms with a small flange also occur in this district. As no Fly River clubs are present in the Ballantine collection, I must leave them out of consideration for the present. Several specimens are figured by D'Albertis (*New Guinea*, II, p. 86), two of which are copied in Figs. 90, 91; the former is quite typical, the latter is more specialised, and from the engraving looks as if a very rudimentary flange was present.

Four Points.—Two clubs in Mer (Murray Islands, Torres Straits) which were formerly used in the sacred Malu ceremonies have four long bluntly pointed rays. In section each ray is biconvex. At Yam Island, one of the Western Group, I obtained the head of a large four-rayed club, made of granite, which was also used in the ancient ceremonies, but in this unique specimen the rays were convex above and slightly concave below in section. The same holds good for the stone as a whole, so that it rests upon its four points in one position and upon its centre in the other, Fig. 92.

B. FLANGED STAR CLUBS.

The typical flanged star clubs are on the whole very similar to one another. The chief variation consists in the number and size of the rays or points of the star. There usually is a well-marked flange, and the rays are generally broad at their base and flattened above and below. Like the "pickaxe clubs," these are usually carefully made and well polished. This type is very characteristic of the Rigo district; but it is also fairly common in the interior of the Central district. I think the rays are liable to be convex on their upper and lower surfaces in the Gulf and Mekeo districts.

1. *Four rays.*

A smallish club, Fig. 93 (19), with short, stout rays and a deep flange, formerly belonged to Gewe, the Chief of Agi. The handle (1,100 mm.) tapers gradually below. There is finely plaited canework on each side of the stone; this expands to form a kind of cup for the latter. The club is further decorated with feathers and coix seeds. Agi (IV). (Diameter 113, height 67.)

2. *Six rays.*

An example, Fig. 94 (20), of this common type has long, broad flat rays. The long (1,265 mm.) handle tapers below. Above the stone is some fine polygonal cane plaiting surmounted by a bunch of parrot feathers; below it are half a dozen turns of a string of human hair, and 215 mm. below the stone is a band of black

and white polygonal plaiting and some string. Duha (IV). (Length 172, breadth 163, height 64.)

Another specimen, Fig. 95 (21), has short, broad, flat rays, one lateral being much shorter than the others. The long (1,270 mm.) handle has plaited cane above and below the stone, and ends in a cone. Wamai (IV). (Length 121, breadth 102, height 59.)

3. *Seven rays.*

In the Ballantine collection is one of this kind with moderately broad rays and a large flange, it came from Wōmai, in the Gulf District (II).

4. *Eight rays.*

This appears to be a common form of star club. Fig. 96 (22) is hafted on a long handle (1,335 mm.), which has cane plaiting, which expands in a saucer-like manner above and below the stone; it is pointed below. Agi (IV). (Diameter 125, height 52.)

5. *Ten rays.*

A ten-rayed club, Fig. 97 (23), is somewhat rare. Deduri (IV).

C. COMPLEX FLANGED STAR CLUBS.

A beautiful type of complex star club has four main rays, and in each angle are two small rays, which lie in a plane above and below that of the main rays.

In the Cambridge Museum is a very fine specimen, Fig. 98, of this type. The long handle (1210) tapers below; there is a deep (86) band of fine, oblique, 8-ribbed plaiting above the stone, and there are some turns of human hair and string below the stone. Probably Central district (IV). (Total diameters of large rays 233, 233, total diameters of small rays 103–107, height, including the deep flange, 89.)

Fig. 99 (25) is a broken example of this type.

In the Ballantine collection is a club, Fig. 100 (26), with an oblong contour, which has four large points corresponding to the angles of an oblong. At one end and at one side there is a small intermediate ray; on the other side there are two small, blunt points not quite in the same plane in the angle of the larger two, but there is nothing in the angle of the other end. The stone is greenish, with lighter inclusions. The long (1,535 mm.) handle tapers below and ends in a small knob. The head end is covered with coarse cane plaiting of a somewhat unusual pattern. Inari (Hogere) (IV). (Diameter 116 × 87, height 46.)

NOTES ON THE GEOGRAPHICAL DISTRIBUTION OF STONE CLUBS IN BRITISH NEW GUINEA.

Sir William Macgregor states: "The stone club is also used in the bow-and-arrow country [from the Dutch boundary to the Angabunga, Mekeo District], but it is not common among some of the coast tribes, where stone is

rare."¹ "The stone club is found practically everywhere on the mainland. Its use is universal on the north-east coast and at all parts of the interior that have been visited. Its place is supplied on the low coral islands of Nada by clubs of ebony-wood, and in the Louisiades by palmwood clubs. It is certainly remarkable that on Murua (Woodlark Islands) the stone club was not used or made, although the best stone for axes and adzes is found and worked there. Clearly the stone club has never been used in our islands at any time."²

It is also strange that no stone clubs are known to me from the mainland from Cloudy Bay to East Cape. The short description I have given of clubs from the Cloudy Bay District was written mainly from hearsay.

Until very recently the stone clubs were so necessary to the existence of the natives that they would not readily part with them, but as the country becomes more settled and the smaller tribes feel that they are protected by the Government from raids, the natives are willing to trade their stone clubs for tomahawks and scrub knives; this accounts for the circumstance that so many clubs have been collected in British New Guinea during the past few years. As a matter of fact there are now considerable areas of British New Guinea along the coast and among the bush and hill tribes where it is very difficult or even impossible to find any stone clubs at all.

This buying up of the stone clubs is sociologically a benefit to the natives, as stone clubs are always associated in their minds with fighting, whereas tomahawks and scrub knives are used in clearing the scrub when making gardens, but one must not forget that after all these latter implements make very efficient weapons.

It is impossible to tell the age of a Papuan stone club. Many have every indication of being of great age, and consequently there has been plenty of time for them to have become generally distributed throughout the country. The distribution of clubs may have been partly effected by means of barter, for many of the tribes are keen traders, but probably most of the clubs were disseminated during the frequent raids. It is well known that a tribe or even a confederation of tribes will travel considerable distances when man-hunting, and it is only natural that such valuable weapons as stone clubs should be retained as the spoils of war.

We are in ignorance as to where the clubs are made or how this is accomplished. It is only recently that the process of making the perforation has been described by Sir William Macgregor. I may add that I have myself seen Gewe, the chief of Agi, pounding away at an unfinished stone club in the manner described by Sir William.

In a despatch, dated 15th November, 1895, reporting the result of an expedition to the Mambare River, Sir William Macgregor writes as follows:—

"In this village [name unknown, situated on the Mambare River] there was lying on the ground a flat piece of basalt stone, apparently picked out of the river,

¹ *British New Guinea: Country and People*. London. John Murray. 1897. p. 61.

² *loc. cit.*, p. 60.

already of the requisite thickness for a disc stone club, smooth on both sides, and ellipsoid in outline; it was now being bored for the reception of the handle. Each side was already pierced half an inch deep, the little pit being about an inch and a half wide at the surface and tapering to a point at the deepest part. Evidently it was being bored by a hard stone with sharp angles, in the same way as the natives bore large holes on thick slabs of shell with splinters of quartz on Duau and elsewhere." (Appendix D, p. 13, *Ann. Rep. Brit. New Guinea*, from 1st July, 1895, to 30th June, 1896. Brisbane, 1897.)

In the following Annual Report (1st July, 1896, to 30th June, 1897. Brisbane, 1898. Appendix C, p. 4) Sir William writes:—"Here, for the first time, I had an opportunity of seeing how natives make the hole that receives the handle in a stone club. Some time ago I found one they were in the act of boring, but they had taken away the borer. That same specimen, with the borer, is now in my possession. They select a number of small stones of the size and shape of a rifle bullet. They chip a hole through the stone club by light blows from the point of the small stone. It is surprising what progress can be made in boring the hole by this very simple contrivance."

About twenty odd miles up the Mambare River, Commandant Butterworth bought what he took to be two stone clubs; "but on close inspection," he says, "I found them to be made of pottery, which would prove that the natives are very smart rogues" (p. 19, *Ann. Rep. Brit. New Guinea*, 1895-96. Brisbane, 1897). It does not follow because a stone club is imitated in pottery that there is any intention to deceive. It is a pity that Captain Butterworth did not state the kind of club that was copied.

It is pretty evident that the clubs are made in the interior. Suitable stone is rarely found near the coast, and some, at least, of the coast people are practically little more than pure fishermen. The next question is, Do the men of a given district manufacture a particular kind of stone club, or do they make any kind indifferently?

I am not able to give final answers to these questions; but by classifying a large collection, such as Mr. Ballantine's, who has over 300 clubs, one finds that it is possible to map out areas of distribution for many types of clubs, and we may presume that these clubs were manufactured in, more or less, that district whence they were obtained. Disc-shaped clubs are obtained pretty well from all over British New Guinea, and hence we may conclude that these are made everywhere; but even amongst these there are certain types that appear to have a restricted distribution.

I regret that my limited knowledge does not allow me to describe the lithological characters of the stones employed. Some interesting facts will doubtless be elicited when these are studied by an expert.

The workmanship of the club is also an important factor, as is also the character of the handle. I have described the handles of the clubs fairly thoroughly. A handle often forms an important clue to a club of doubtful locality,

provided that the handle is original. It is necessary to emphasise the last statement, as I am sorry to say that to my own knowledge stone heads from one district have been fitted with handles by natives of an entirely different district, and in consequence all clubs with handles that are evidently newly made must in future be regarded with suspicion. Of course it is perfectly legitimate for a collector to get natives to haft old stone heads that have been procured from that particular district, for in every case the handles of stone clubs must be much newer than the stone head, and probably most of them have had many handles in the course of their existence. The chief points to notice in a handle are the length, the character of the cane plaiting at the head end, and the manner in which the end of the grip is finished off.

I find that some half a dozen areas of distribution of stone clubs can be demarcated with a fair degree of certitude. These I take in geographical order, proceeding from west to east.

I. THE WESTERN DISTRICT.

This district includes the Fly River Valley and the mainland of British New Guinea facing Torres Straits. The latter is known as Daudai or Dudi which may be taken as the country lying between the Mai Kussa and Fly Rivers. I cannot assign any eastern limit to the district.

Flat or biconvex disc clubs are very common. They are often somewhat irregular in outline, but are apparently meant to be circular. Unflanged star clubs are also characteristic. Sometimes they are of rather rude workmanship; others are well made, with a polished surface. The number of rays varies from four to about a dozen; the latter variety rather merges into the class of disc-shaped clubs with notched edges, examples of which also occur in this district. Ovoid clubs have been obtained from the Fly River.

The handles are usually thick, often of stout ratan, and either are cut off square below the grip or taper below to more or less of a blunt point. A string loop is generally present.

I believe that most of the clubs from Torres Straits were imported from the Fly River District and Daudai; at all events, they are so similar that they must be regarded as belonging to the same district. I have collected flat and biconvex wooden disc clubs in Torres Straits, and a small unflanged seven-rayed wooden star club. The weapons of the Torres Straits islanders will, however, be dealt with on a subsequent occasion.

I have no information, at present, respecting the stone clubs from Daudai westwards to Netherlands New Guinea.

Reference should here be made to the disc and star stone clubs "collected" by D'Alberty in a village about 350 miles up the Fly River. They are surmounted by perforated ornamental slabs wonderfully carved in hard stone.¹ The artists who

¹ Cf. D'Alberty, *New Guinea: What I did and what I saw*, II, pp. 136-137; and Haddon, *Decorative Art of British New Guinea*, p. 78.

made these objects were probably the most skilled workers in stone of whom we have any record in this quarter of the globe; indeed I do not recall any stone work of its kind in any part of the world or at any period.

II. THE GULF DISTRICT.

I cannot at present determine the westerly limit of this district. No specimen of stone club that I have studied comes from farther west than Orokololo. The easterly limit extends to about Cape Possession. The following is a list of villages proceeding in the same direction:—Maipua, Orokololo, Vailala, Keuru, Kērēma, Lolobada, Siro, Wōmai, Karama, Oraruru, Moveave, Toaripi ("Motumotu"), Lese, Jokea, Kaima (Waikapu or Oiabu).

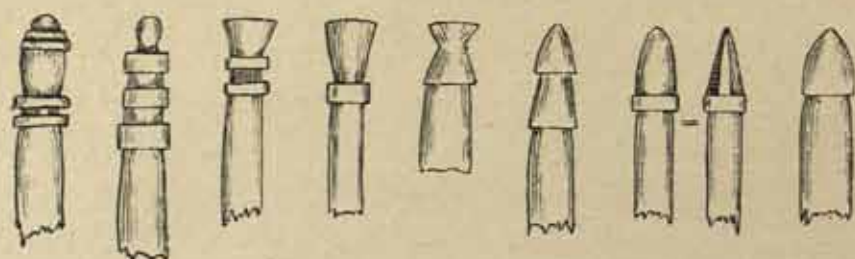
Very characteristic of this district are clubs made of natural stones or of stones which have been slightly worked. These may be plain (Figs. 1-3, 5, 6) or notched (Figs. 4, 7), or be scored by shallow (Fig. 9) or deep (Figs. 11, 8) grooves in a rectangular manner. The latter pass into the unflanged knobbed clubs (Figs. 66-74), which are equally characteristic of the district. Disc clubs are common; they are often of large size and usually oval in contour. The edges may be simply notched (Figs. 46, 47), or the indentations may be so deep as to leave prominent knobs (Figs. 49, 50). The latter clubs might almost be classed as star clubs. There are also intermediate grades between flat clubs with simple notched edges to characteristic depressed unflanged knobbed clubs; for example, the notches may be far apart (about nine in number) and each may be continued as a converging radial groove along each face of the disc, also each radius may be scored by two or three concentric grooves.

Hitherto the natural stone clubs (Figs. 1-4), the unflanged knobbed clubs, (Figs. 66-76), the triangular (Figs. 39, 40), rectangular, and other peculiarly shaped disc clubs (Figs. 33-38), and the large two-pointed pickaxe clubs (Figs. 12-14) have been obtained only from this district. Flattened ball clubs (Fig. 18) are not rare. A few unpolished ovoid clubs have been collected in this district. All flanged clubs are rare. A few flanged star and knobbed clubs have been obtained; but the flanged disc clubs (Fig. 44) are only found here. The same applies to the wooden knobbed clubs (Figs. 28-30).

The heads are often made of a gritty rock, so that they have a worn appearance and do not take a polish. It is partly this circumstance that gives the Gulf clubs such a rude appearance. But independently of this, the workmanship on the whole is not so careful as in other districts, and very often it is extremely rough. Many of the stones are painted with red and white pigments (Figs. 3, 4, 7-11, 46, 47, 69, 75). The red may be a dull red ochre, but frequently it is a distinct and pretty pink which looks as if it had some white mixed with it. The pink pigment appears to be most frequently employed about Wōmai, Karama, and Kērēma.

The handles are usually very rude and often crooked. It looks as if these people bestowed less care upon their clubs than in other districts and regarded

them almost solely from the point of view of utility. The handles are generally short and very thick; frequently they taper at both ends. A certain number of clubs have very long handles; probably these characterise some bush tribe. The stone is sometimes simply thrust on to the handle (Figs. 1, 2, 18, 61, 76); but usually there is some coarse cane plaiting which serves to fix the stone. In a few cases (Figs. 3, 4, 14) bark cloth is used for this purpose. Sometimes the cane plaiting is neatly executed, and in a few clubs it is finished off by a raised band (Figs. 44, 64). Occasionally (Figs. 6, 68) the head of the club is decorated with cassowary feathers. The grip end is rarely squared; more frequently it is roughly chipped to a blunt point; sometimes it tapers gradually to a sharp point. Characteristic of this district is the carving of the end of the grip into one or more beads.



A few have characteristic simple Gulf patterns incised in a band a short distance below the head (Fig. 32) or below the grip.

III. THE MEKEO DISTRICT.

In employing the designation of the Mekeo District, I include the drainage system of the Angabunga ("St. Joseph River") and the immediately adjacent country, more especially to the south. Perhaps the basins of the Aroa (that is, the Kabadi country) and of the Vanapa should also be included.

The characteristic stone club of this district is the flanged knobbed club (Figs. 52, 56-60). Disc clubs (Fig. 31) are very rare.

The handles are usually of moderate length. The cane plaiting is finer and neater than that of the Gulf District. Often there is a string loop. Usually the grip ends in a blunt point.

IV. THE CENTRAL DISTRICT.

This district includes the large drainage system of the Laroki and its affluents, and comprises all the hill tribes that live between the Astrolabe Range and the Main Range. The following is a list of most of the tribes and villages from which clubs have been obtained:—Gasiri, Taburi, Hogere ("Sogere"), Iaritari, Havere, Vadiri, Korohi, Favere, Adori, Maiari, Vafare, Seremina, Iovi, Duba, Maraka, Ubere, Eaha, Wamai, Boura, Agi.

The most characteristic clubs from this district are the highly finished ovoid clubs (Figs. 19-27). This group appears to be confined to the district, although unpolished ovoid clubs have been obtained in the Gulf and Fly River Districts.

Disc clubs (Figs. 41-43) are common; ball clubs (Figs. 16-17) less so. Characteristic of the interior of this district are "flanged fir-cone clubs." Flanged knobbed clubs (Figs. 53-55) occur near the Main Range, and flanged star clubs (Figs. 83-87) are not common. Four-pointed pickaxe clubs (Figs. 79-82) are found here.

The ovoid or "emu-egg" clubs are mounted on very long handles, but the disc clubs have short handles. The cane plaiting improves, as a rule, the nearer the Main Range is approached. In the region about Agi, Wamai, Eaha, the plaiting expands in a saucer-like manner to embrace the stone above and below (Figs. 54, 83). This peculiarity is not met with south of Vafare. It occurs again on the other side of the Main Range on the Mambare River. The head end of the clubs is sometimes decorated with feathers, generally those of parrots (Figs. 41, 63, 83, 84, 87, 88). This is more frequent among the tribes nearer to the coast, and less so towards the Main Range.

In the majority of clubs the grip ends in a longer or shorter cone.

V. RIGO DISTRICT.

The fertile drainage system of the Vanigela (Kemp-Welch River) includes the Rigo administrative district.

The characteristic clubs of this district are the various forms of the flanged star group. These clubs are beautifully made and well polished. Four-pointed pickaxe clubs also occur here. Discs are also common.

The clubs are well mounted, and the handles generally terminate below in blunt points.

VI. CLOUDY BAY DISTRICT.

This district is inhabited by the Dedele, etc.

Flanged star and knobbed clubs are found here, but they are said usually to be of smaller size than in the foregoing districts. I believe that the ovoid clubs with closely set low knobs disposed in oblique lines, so that there are from four to eight in a vertical direction, "fir-cone club," occur in this district. Flattened flanged clubs with a double notched edge are also characteristic.

The clubs are well mounted, the cane plaiting is fine, and the clubs are often decorated with feathers.

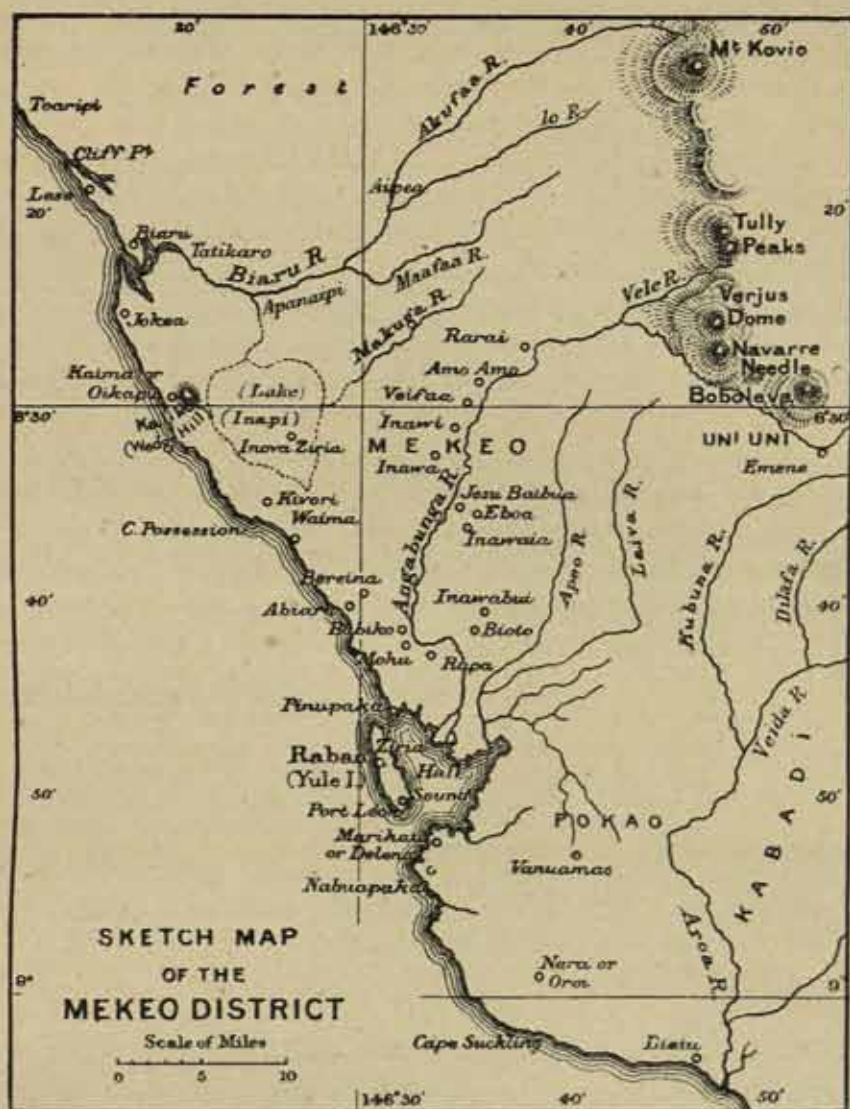
VII. NORTH-EAST DISTRICT.

The few stone clubs that I have seen from Kumusi, Kome, and other localities on the north-east coast of British New Guinea do not appear to differ in any essential point from those obtained from the Mambare River. A sufficient number of specimens have been obtained from the latter region to warrant the following general account:—

Apparently the most common stone club is the flanged knobbed form.

Usually the flange is deep. The majority appear to have three knobs in the vertical series and from ten to fourteen in the horizontal series. There is no difference between these club heads and those from the Mekeo District. Ovoid knobbed clubs of the "fir-cone" variety, I believe, also occur. Perhaps the most common type of disc is the thin flattened form; the flanged flattened disc is also found, though rarely.

The characteristic feature of the Mambare club is to be found in the handle. The average length of ten handles taken at random is 1,150 mm., the extremes being 877 mm. to 1,690 mm. The stone is fixed some distance from the end of the handle, and this space, which averages about 75 mm., is covered with fine cane plaiting. There is a similar, usually broader, plaited band below the stone, the average length of which is at least 85 mm., and there is generally an additional binding of sinnet, etc. The plaiting may expand above and below the stone into a cup, which fits over the ends of the flanged knobbed clubs, as previously described in clubs on the other side of the Main Range near the Gap, below Mount Bellamy. The free end of the handle is usually decorated with a bunch of white or coloured parrots' feathers. Similar feathers are often fastened to the inferior border of the lower band of plaiting. Not infrequently the fur of the cuscus is employed in decorating the clubs. Occasionally there is a carved band with a zigzag design below the lower plaiting. The grip usually ends off in a long pointed cone, above which there may be a bead and a further decoration of feathers.



Description of Plates XIX, XX, XXI.

- I. Natural stone clubs, or clubs with a slight amount of working, 1, 2, 3, 4 (Gulf).
- II. Ring clubs.
 1. Unflanged : 5, 7 (Gulf), 6 (Central).
 2. Flanged : 8 (Gulf?).
- III. Ball clubs.
 1. Unflanged : 11 (Gulf), 9, 10, 12, 13 (Central).
 2. Flanged : 14 (Central).
- IV. Ovoid clubs.
 1. Short and thick : 15 (Central).
 2. Long and tapering : 16 (Central).
 3. Cylindrical : 17 (Central).
 4. Barrel-shaped : 18 (Central).
 5. With an equatorial swelling : 19, 20 (Central).

V. Disc clubs.

1. Oval; A. Thick: 21 (Mekeo), 22, 23, 24 (Gulf). B. Thin: 25 (Central), 26 (Gulf).
2. Various shapes; A. Oblong: 27 (Gulf). B. Triangular: 28, 29 (Gulf). C. Diamond: 30 (Gulf?). D. Lakatoi: 31 (Gulf).
3. Circular: A. Biconvex, thick: 32 (Torres Straits). B. Thin: 33 (Central). C. Flattened, thin: 34, 35 (Central). D. Flattened, thin and flanged: 36 (Gulf). E. Undulating: 37 (Gulf).

VI. Flat clubs with notched edges.

1. With a single row of notches, no flange: 38, 39, 40, 41, 42 (Gulf).
2. Two rows of notches; A. Unflanged: 43 (Gulf). B. Flanged: 44 (Central).

VII. Knobbed clubs.

- A. Unflanged; 1. Natural stones, or with a small amount of working: 45, 46, 47, 48 (Gulf). 2. Knobbed ring clubs; a. One row of knobs: 49, 50 (Gulf). b. Three rows of knobs: 51 (Central). 3. Knobbed ball clubs: 52, 53 (Gulf). 4. Depressed knobbed clubs; a. Four rows: 54 (Gulf). b. Five rows: 55, 56, 57 (Gulf). c. Six rows: 58 (Gulf). d. Seven rows: 59, 60 (Gulf). e. Eight rows: 61 (Gulf). 5. Human-head club: 62 (Gulf). 6. Ovoid; a. Knobs disposed vertically: 63, 64 (Gulf). b. Knobs disposed in oblique lines: 65 (Cloudy Bay?). c. Barrel-shaped: 66, 67 (Gulf).
- B. Flanged; 1. One row of knobs: 68 (Central). 2. Two rows: 69 (Mekeo), 70, 71, 72 (Central). 3. Three rows: 73, 74 (Mekeo). 4. Four rows: 75 (Mekeo). 5. Five rows: 76, 77, 78 (Mekeo). 6. Knobs disposed in oblique lines: 79 (Central).
- C. Wooden knobbed clubs: 80, 81, 82 (Gulf).

VIII. Pickaxe clubs.

1. Pickaxe clubs with two points: 83, 84, 85 (Gulf). 2. Clubs with four points; A. Unflanged: 86; B. Flanged: 87, 88, 89 (Central). 3. Complex.

IX. Star clubs.

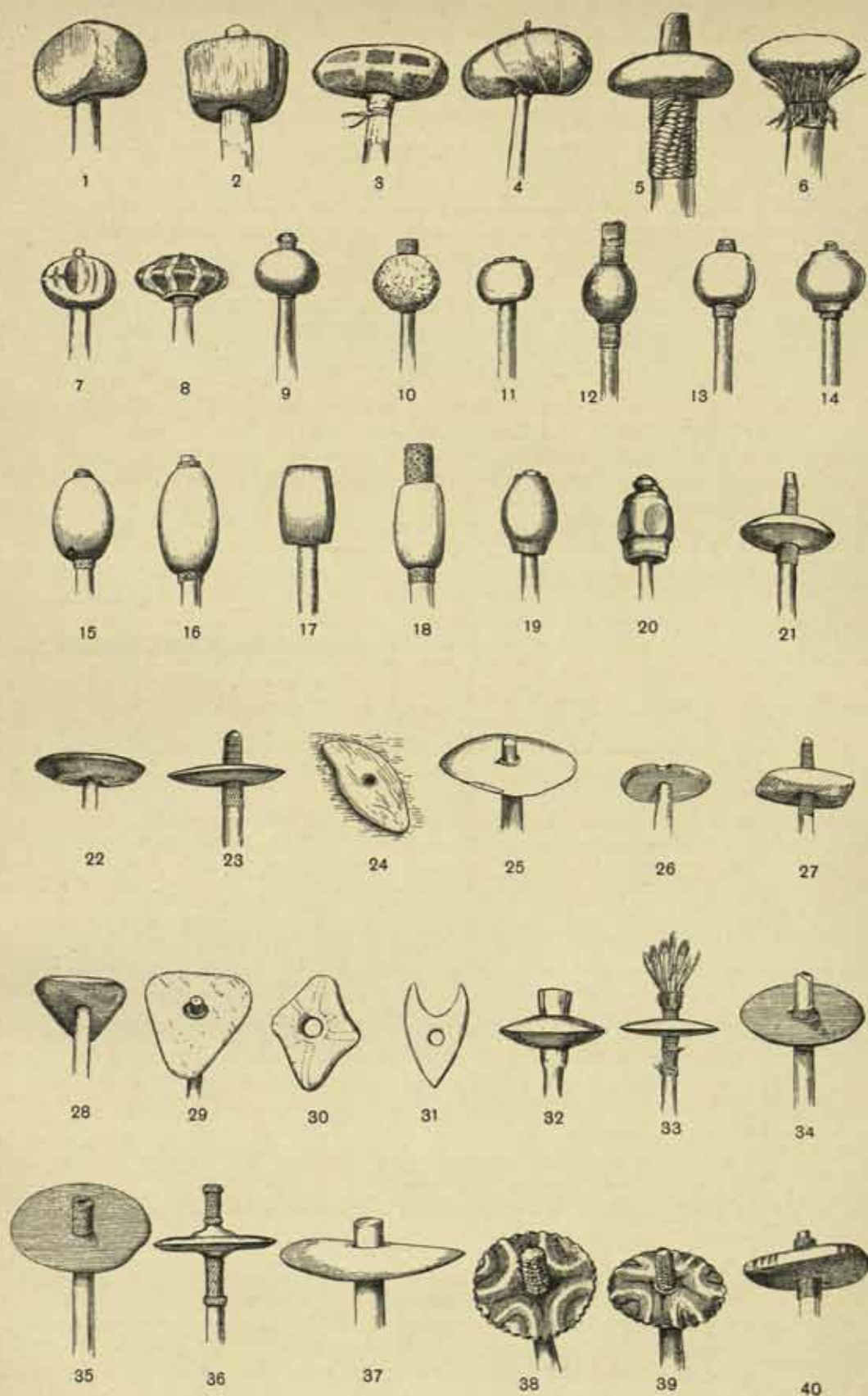
- A. Unflanged: 90, 91 (Fly River), 92 (Torres Straits).
- B. Flanged; 1. Four rays: 93 (Central). 2. Six rays: 94, 95 (Central). 3. Seven rays. 4. Eight rays: 96 (Central). 5. Ten rays: 97 (Central).
- C. Complex flanged clubs: 98 (Central?), 99, 100 (Central).

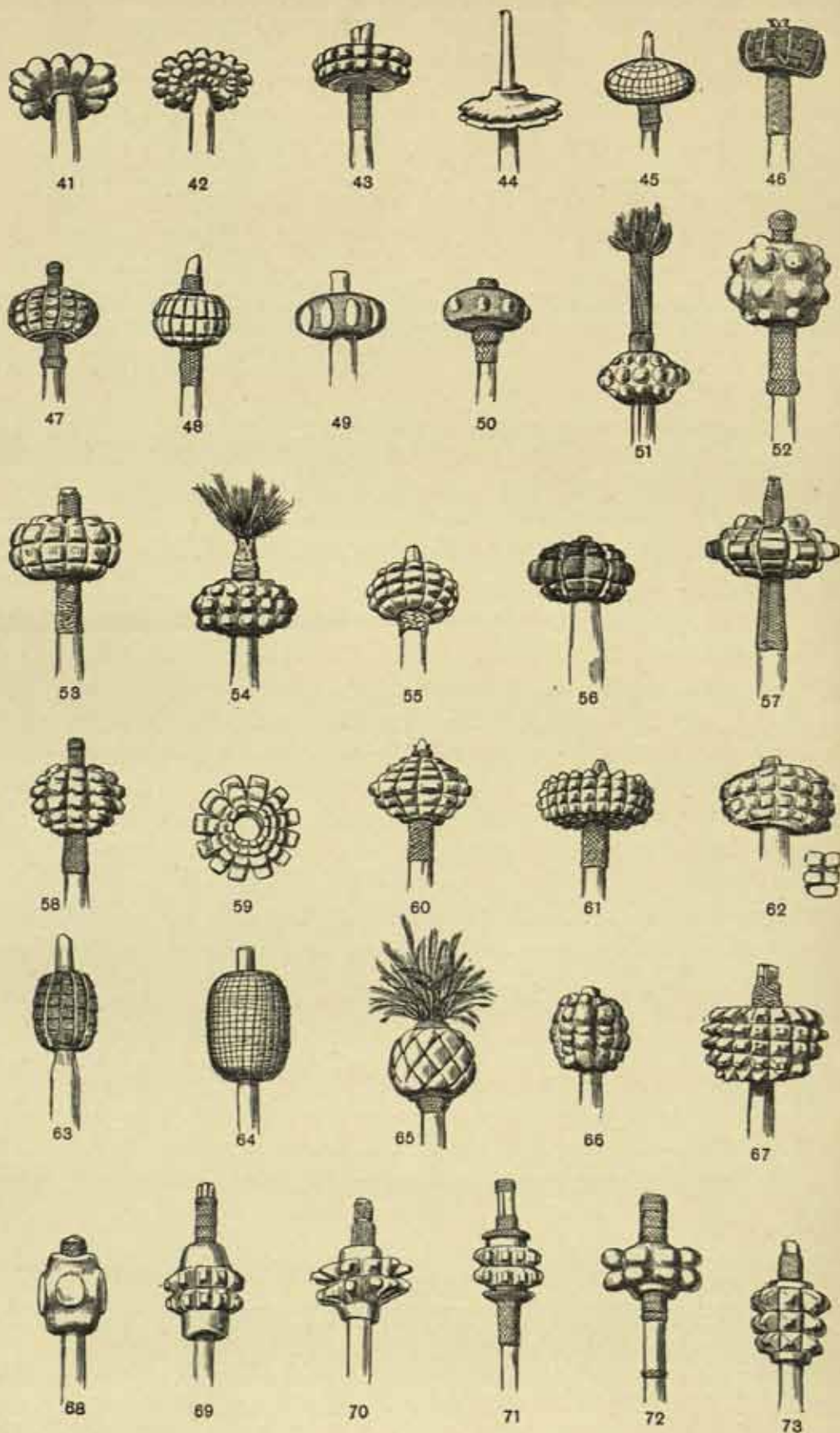
Description of Plate XXII.

Typical stone clubs from seven districts of British New Guinea—

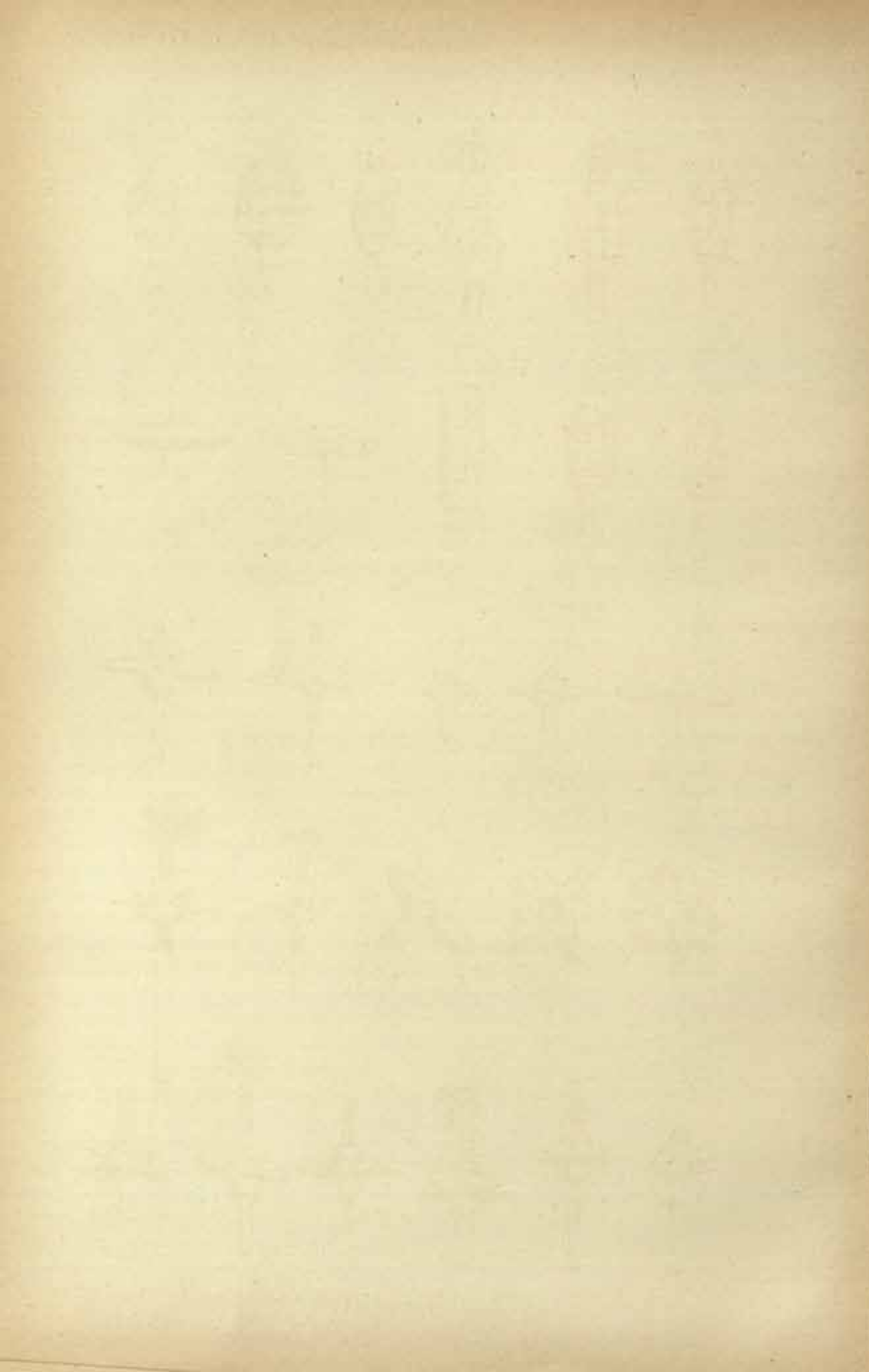
1. Thick, biconvex, circular disc club; Yam Island, Torres Straits. Cambridge Museum.
2. Unflanged, flat club with two rows of notches at the edge; Kupava, Evaora, Romilly Sound, Papuan Gulf. Cambridge Museum.
3. Flanged knobbed club with four rows of knobs; Mekeo. Cambridge Museum.
4. Short, thick ovoid club; Gasiri, Central District. Cambridge Museum, presented by the Hon. D. Ballantine.
5. Flanged, knobbed club with three rows of knobs; Mambare (North-East). Cambridge Museum, presented by Sir William Macgregor.
6. Unflanged, knobbed club with knobs disposed in oblique lines; Inland, back of Cloudy Bay (?). Australian Museum, Sydney.
7. Six-rayed, flanged star club; Rigo.

All the clubs are drawn to the same scale of one-seventh.





STONE CLUBS FROM BRITISH NEW GUINEA. 41-73





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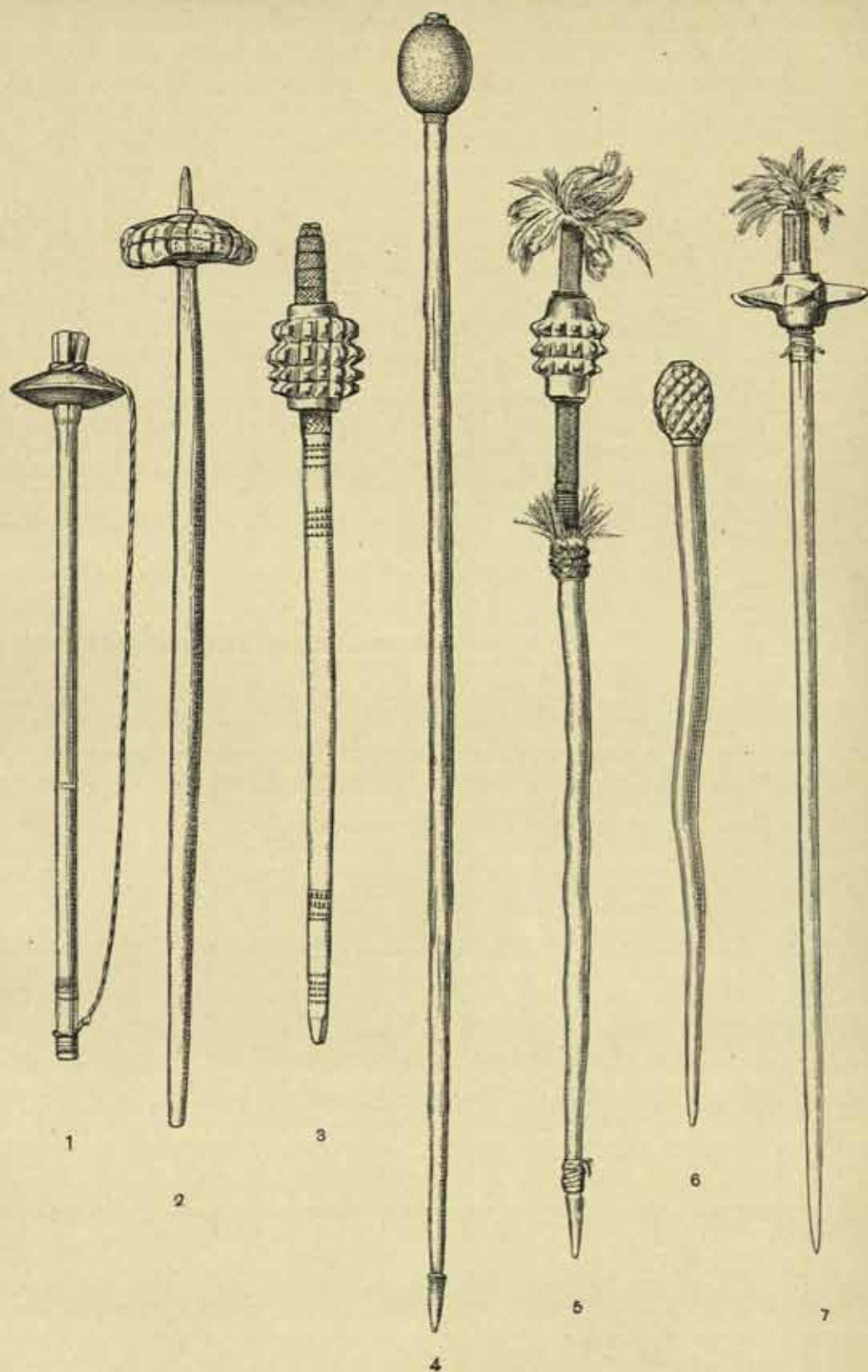
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TYPICAL STONE CLUBS FROM BRITISH NEW GUINEA

A PRIMITIVE FIGURINE FROM ADALIA.

BY JOHN L. MYRES, M.A., F.S.A.

[PRESENTED JUNE 12TH, 1900. WITH PLATE XXIV.]

THE little figure which is represented, from three points of view, in Plate XXIV, was acquired by Mr. H. Swainson Cowper, F.S.A., at Adalia in Asia Minor in the course of the year 1900; was exhibited on his behalf at a meeting of the Anthropological Institute on the 12th June, 1900; and has since been presented by him to the Ethnographical Department of the British Museum. The negatives from which the representations in the plate were made are numbered respectively 2,101; 2,102; 2,103 in the inventory of the Anthropological Photographs Committee of the British Association for the Advancement of Science.

The figure measures only 50 mm. (2 in.) in height, so that the representations given here are very nearly of full size. It is composed of a clay which closely resembles that of the earliest pottery at Hissarlik,¹ being black throughout, smooth on the worked surface, and rather gritty or granular in fracture.

The type is that of a female figure, represented in a sitting, or rather in a squatting posture. The general form is given, in primitive fashion, simply by modelling the clay with the fingers; while the limbs appear to have been added (as is often the case with the earliest Cypriote figurines)² with separate pellets of clay. But, of these, that which represents the right foot (to the left in the front view) has never been thoroughly incorporated with the trunk; and either has fallen off, or rather, as will appear later, has perhaps been detached intentionally, to carry out a change in the purpose of the artist.

The minor features are indicated on the surface of the clay by incised lines and punctured dots, some of which still retain traces of the chalky filling which is so common on the earliest incised pottery of the Mediterranean area. On the flat top of the head is a rude cross, which denotes perhaps hair, perhaps some form of head-dress. On the face there appear only a fringe of short strokes (for the hair of the forehead) and two enormous eyes, which, meeting as they do in the centre of the face, produce in front view the effect of a sort of beak, though the anterior surface of the head is seen in profile to be flat. Nose and mouth, on the contrary, are wanting, if we except one careless puncture (which may even be accidental) below the meeting-point of the eyes. Round the neck are represented two collars with numerous short pendants: the lower one has also a disc-like central pendant in front. The chevron-form which these collars assume, both in

¹ Schliemann, *Ilios*, pp. 218-220.

² Myres and Ohnefalsch-Richter, *Cyprus Museum Catalogue* (Oxford, 1899), p. 27, and Nos. 463, 5402, 5555.

front and behind, is closely parallel to that of the collars on the clay figure from Hissarlik,¹ and the mode of representing the face is obviously closely analogous to that of the "owl-faced" members of the same group of figures.²

On the arms and hands, which are pressed closely upon the breasts, the fingers are indicated, but no thumbs; at the wrists there are two transverse lines which may represent bracelets, but more probably simply indicate the wrist-joint; and on the forearm there are three longitudinal incisions. The latter might at first sight be taken for drapery, but more probably stand for tattooing or paint; for the indication of the navel and other details on the abdomen show that the figure is conceived by the artist as nude; the navel, in fact, being markedly emphasised by a ring of eight dots round its central point.

The legs, like the arms, are much curtailed, and are represented folded upon the abdomen. On the left foot, the toes and ankle-joint are shown by incised lines like those on the hands; but with this addition, that the space between the two transverse lines is sparsely filled with punctured dots: similar punctured ornamentation may be seen on another of the clay figures from Hissarlik.³

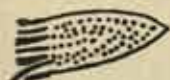
The right foot, as has been noted already, is missing now, but its place appears to be supplied by a curious tail-like feature (*q.x.*) in rear of the left leg, of which portions can be traced in each of the three photographs. It presents, unmistakably, the outline of the sole of a foot, represented as protruding, in a squatting position, from under the left thigh; the outline of the sole being punctuated, like the ankle of the left leg, with numerous dots, to distinguish it as a solid object, and to detach it from the background. The intention of the artist clearly is, to represent the figure seated on the ground with the legs crossed: the left leg comes across the figure in front, while the right, which thus lies behind it, is tucked away beneath the body, so that only the foot emerges, in the position in which it is shown, beneath the left hip of the figure. The scar, meanwhile, which has been already noted in the place where the right leg should be, suggests further that the artist began by attempting to represent both feet in front symmetrically; but afterwards changed his mind, removed the right leg, and added the right foot in its present position. It is, however, not impossible that the missing portion may have been unincised, and intended rather to represent the projecting knee of the right leg: and if so, we must assume that it has been detached accidentally.

This half sitting, half kneeling attitude, not unlike the "kneeling position" of the modern rifleman, adds much to the interest of the figure; for, with some variation in detail, it is characteristic of a group of figures, which is widely distributed in the Eastern Mediterranean both in space and time: in some of the later examples, moreover, and perhaps in the earlier also, it may even be suspected to have a definite ritual significance. The best known, and most characteristic

¹ *Ilios*, Fig. 205.

² *Ilios*, Figs. 191-220.

³ Perrot Chipiez, *Histoire de l'Art dans l'Antiquité*, VI, Fig. 337. For the significance of punctured ornament, see p. 255 below.



examples of this class, are the figures of stone and clay from the "megalithic" ruins of Hagiar Kim in Malta, now in the museum of Valletta,¹ which are female, like the figure from Adalia, and are seated in a variety of half kneeling attitudes, with one leg crossed in front, and the other drawn away to one side. In the Maltese figures, however, the right foot is usually thrust outwards, instead of being drawn under the body. Other examples carry the same type of figure from end to end of the Eastern basin of the Mediterranean. From the Ægean come the grossly modelled figures found in the Kabiric sanctuary in Samothrace, and from mainland Greece a primitive figure of Pentelic marble, found a little north of Athens, and acquired by the Ashmolean Museum. In the latter instance, it is true, the artist has hit upon another rendering of the legs, which are folded one above the other across the front of the body, much as the arms commonly are in the cognate marble figures from the Cyclades.²

Further, in view of the owl-like visage, and pentagonal trunk, of this figure from Adalia, it becomes highly probable that those truncated and "owl-faced" images of marble or limestone,³ which were found in such numbers in the lower strata of Hissarlik, and to which repeated allusions has been made already, are only still more inexpert attempts to reproduce the same squatting type; at all events, the well known leaden figure⁴ shows very well that a "Trojan" artist had no difficulty in modelling a full-length figure, if he wished to do so; and in the Cyclades too, the "violin-shaped" type of marble figure,⁵ of very rounded outline, and devoid of legs, co-exists with a whole class of well modelled full-length figures, and may very likely represent a squatting type like that of the Attic figure.

Further still, it can hardly be accidental that the Maltese, the Samothracian and the Attic figures agree with that from Adalia in an abnormal steatopygia, which recurs in some of the full-length figures from the Cyclades,⁶ has given rise to a number of ethnological speculations. In the case of the figure from Adalia, indeed, the steatopygia is by no means so pronounced, and is further concealed by the rudeness of the workmanship, the flat standing-base of the figure, and the abbreviated treatment of the lower limbs. But no one, I think, can fail to observe the marked looseness and grossness of the contours of the figure; while the profile-view in particular shows a corresponding protrusion of the abdomen, between the hands and the feet, which is very carefully modelled, and certainly intentional.

Coming now to more easterly, and at the same time to less primitive figures,

¹ See Caruana, *Report on the Ruins of Hagiar Kim*; Perrot Chipiez, *Histoire de l'Art*, iii, Figs. 230, 231; and s.v. *Malta*, in the forthcoming list of the Anthropological Photographs Committee.

² Blinkenberg, *Antiquités Prémycéniennes*, Fig. 1-3. Evans, *Cretan Pictographs*, Appendix pp. 126, 128.

³ *Ilios*, Figs. 191-220.

⁴ *Ilios*, Fig. 226.

⁵ Blinkenberg, *l.c.*, Fig. 4; and unpublished specimens in the Ashmolean Museum.

⁶ Perrot Chipiez, *l.c.*, vi, Fig. 333 (from Amorgos), 334 (from Sparta).

it is tempting to compare the attitude of the so-called "Temple-boys"¹ which are among the commonest votive sculptures on the sanctuary-sites of Cyprus, and occur occasionally also in Cypriote tombs. The extant examples of this type are indeed one and all later than the fifth century B.C.; but they certainly perpetuate a ceremonial posture, and this may very well have been traditional, and of far greater antiquity than these late instances of it. In these fully modelled figures the attitude itself is more clearly expressed, the figure sits on one foot, usually the left, with the other foot in front, the weight of the body being usually borne partly on the left hand, while the right hand grasps a bird or an incense-box. It is characteristic also of this group, that, though the figure is almost always clothed, the garment is drawn up so as to expose the groin—the original type was therefore essentially nude;—and also that the figure wears one or more necklaces, heavily loaded with pendant-charms. The large majority of the Cypriote figures are male; but female examples are found.²

It is not clear at present what, if any, is the significance of the peculiar attitude under discussion; and the discovery in the Mycenaean palace of Knossos in Crete, of *genre* fresco-scenes in which the female figures are seated in an attitude very similar to that of the Maltese figures, warns us not to lay too much stress on a posture which may have been common in every-day life. At the same time, the posture was not in common use either in Greece, or in Asia Minor, or in Cyprus (except for these "Temple-boys"), during the Hellenic period³; its retention, in the case of the "Temple-boys," as a ceremonial attitude points to it as a survival from an earlier phase of culture; the Mycenaean women in the Cretan fresco are themselves seated in the courtyard of a building which appears to be a Mycenaean temple; and both the Samothracian and the Maltese examples, widely separated as they are in space, and perhaps also in time, agree in having been found, the former in an undoubted sanctuary, which persisted as such into Hellenic times, the latter in a building which like its greater fellow, the "Giganteja" of Gozo, bears the strongest marks of having been the focus of a cult of some kind.

Further, as Mr. Evans has recently shown,⁴ the Maltese, the Cretan, and the Cypriote cults in question are of the same "baetylic" type; centring, that is, round the worship of a pillar, of stone or wood, as the repository of the divine presence; so that the probability is increased, that the similar attitude assumed by votive figures in each case may be a votive or ceremonial attitude.

¹ See Myres and Ohnefalsch-Richter, *Cyprus Museum Catalogue*, Nos. 3153ff, 5112ff, 5201ff, 5576; and Ohnefalsch-Richter, *Kypros*, Pl. xcii. There are several examples also in the Cypriote Room of the British Museum (Nos. 230, 273, 274), in the *Salle des Origines* of the Louvre (uncatalogued) and in the Cesnola collection in the Metropolitan Museum of New York.

² *E.g.*, *Cyprus Museum Catalogue*, No. 3157.

³ In Greece it is an attitude of fabulous or orgiastic figures such as satyrs (as on the coins of the Sicilian Naxos, Gardner, *Types of Greek Coins*, Pl. ii, 20, cf. coins of Thasos, Head, *Historia Numorum*, p. 228), and in this case also probably a traditional and perhaps a ritual pose.

⁴ In a paper which was read before the Hellenic Society (November 1st, 1900), and has appeared in the *Journal of Hellenic Studies*, xxi, pp. 99-204.

In the case of the figure from Adalia, however, it has not been possible to discover whether it was found in any sanctuary, and for the present it remains an isolated find.

Isolated as it is, however, it contributes two other important data to our knowledge. Hitherto the black carbonised clay-fabric, which is characteristic of the earliest settlement at Hissarlik, though it has been traced by the researches of Dr. A. Koerte up the valley of the Sangarios River, has not been identified further to the south and east. In Galatia and Kappadokia, and even in parts of Phrygia itself, in fact, the red-faced hæmatitic clay-fabric which comes up from the direction of Cyprus and the Syrian coast, supervenes directly upon the primitive unfaced wares; whereas in the Hellespontine region we find it supervening upon the black-ware. The discovery, therefore, of so fine a specimen of the black-ware so far south as the neighbourhood of Adalia, is of considerable importance, as extending the area over which the black-ware industry had time to extend before it met the advancing frontier of the red-ware.

The punctured ornamentation also has a wide geographical distribution, and fairly well-defined limits of prevalence in time. At Hissarlik it occurs, associated (just as on the figure from Adalia) with linear incisions, on the black-ware of the lowest stratum¹; but it disappears after the advent of the red-ware. North and west of Hissarlik, similar punctured ornamentation occurs at Butmir and other sites in South-Eastern Europe² on pottery-fabrics which are related, if not ancestral, to those of the "first town" of Hissarlik. South and west of the Hellespont, Asia Minor, ill-explored, interposes a blank as yet. In Cyprus, where no antecedent black-ware-period is known, the punctured ornament also is almost absent: in fact, I know of only one example at all; on a shattered flask of red-ware in the Ashmolean Museum.³ The "black punctured ware" which appears in Cyprus in the middle period of the Bronze Age,⁴ originates, as I have shown elsewhere,⁵ probably on the Palestinian coast, and was imported thence both into Cyprus, and into Egypt from the twelfth to the eighteenth dynasty. It may be remotely descended from the punctured black-wares from pre-dynastic Egypt⁶ and further west⁷; and of this earlier tradition of punctured ornament, magnificent examples are seen on the great doorways, and on the sculptured altar, of the megalithic buildings of Malta.⁸

Both these considerations also enable us to assign the figure to its approximate period; for the advance of the red-ware is intimately connected, as I have pointed

¹ *Ilios*, Figs. 32, 45, 271, 292, 310, 312, 314. Cf. p. 252 (note 3) above.

² Petrie, *Nagada and Ballas*, pp. 38, 63.

³ *Ashm. Mus. Cypr. Inv.*, No. 79.

⁴ *Cyprus Museum Catalogue*, pp. 37-8, and Nos. 381-3.

⁵ *Journal of Hellenic Studies*, xvii, 140.

⁶ Petrie, *Nagada and Ballas*, Pl. XXX.

⁷ Ciempozuelos in Spain (*Bol. R. Acad. Madrid*, XXV, 436ff, Pl. IV, V, XII): Malta (fragmentary vase, apparently from the Bengemma necropolis, in the Valletta Museum, unpublished).

⁸ Perrot Chipiez, *l.c.* iii, Figs. 226-9.

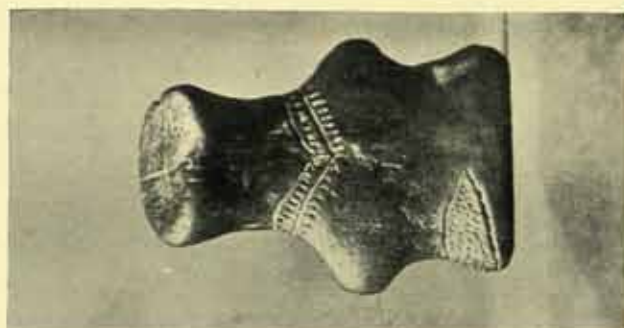
out elsewhere,¹ with the advance of the first knowledge of copper, and the punctured ornament represents the highest artistic development of the black-ware which it immediately superseded.² We may therefore place the figure from Adalia close to the boundary between the latest Neolithic and the earliest Metallic Age; and in close proximity, as its style and ornamentation have indicated already, to the phase of culture which is represented by the lowest settlement of Hissarlik.

DISCUSSION.

The PRESIDENT alluded to the wide distribution of the owl-like faces on prehistoric objects, and stated that he believed that the peculiar ornamentation, formed by filling incisions with a white substance, was by no means confined to the Mediterranean; on the contrary he believed it would be found on careful examination that this method of decoration was in use by the potters of the Bronze Age in Britain, though the poor character of the ware compared with that of the Mediterranean made it very difficult to find examples to prove this with certainty.

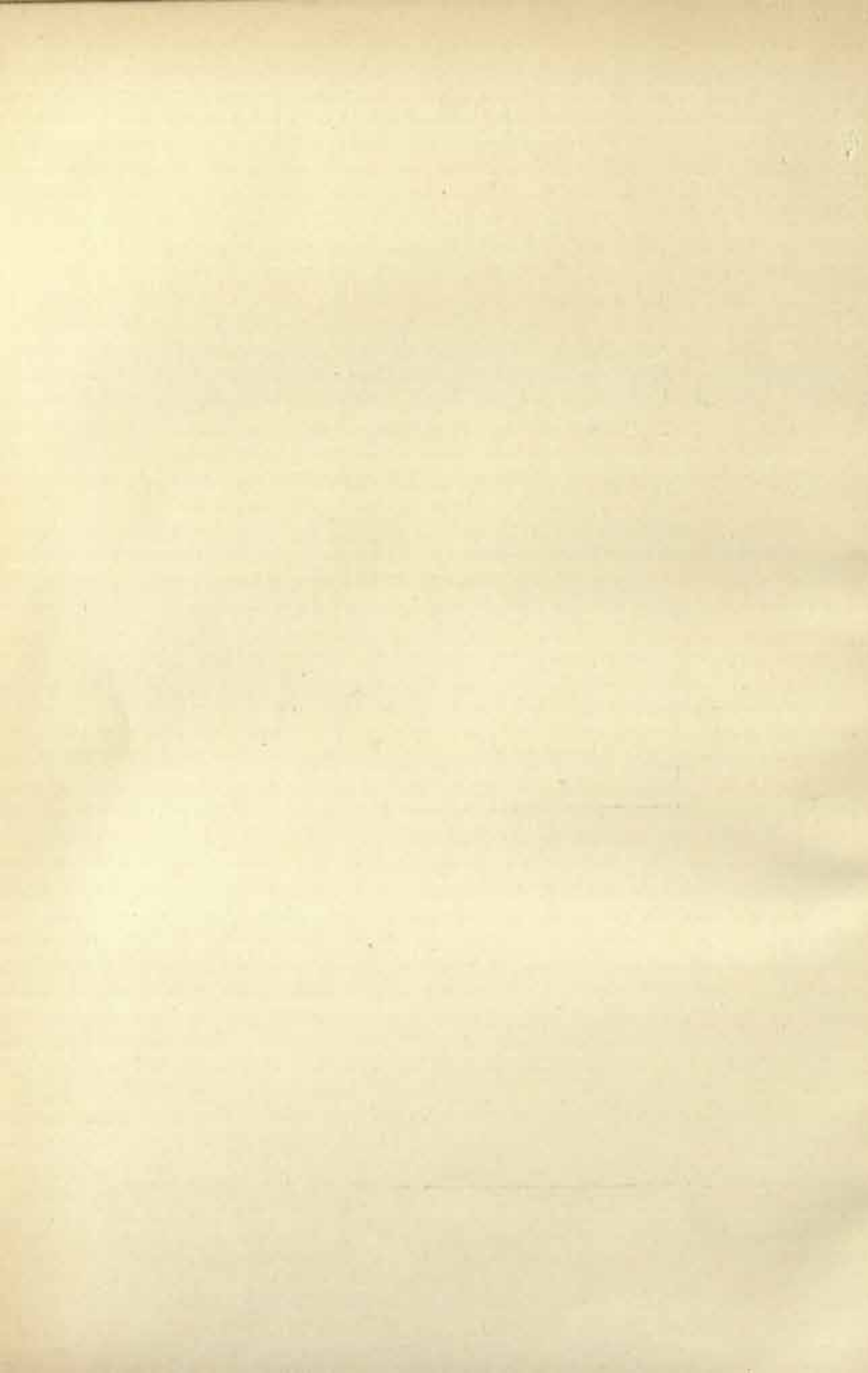
¹ *Journ. Anthropol. Inst.*, xxvi, 369ff. *Cyprus Museum Catalogue*, pp. 15-17.

² Cf. Petrie, *Nagada and Ballas*, p. 38, on the connection between the punctured ornament and the first knowledge of copper.



A PRIMITIVE FIGURINE OF BLACK CLAY FROM ADALIA.

British Museum: Scale $\frac{1}{2}$.



ON STONE IMPLEMENTS FROM TASMANIA. EXTRACTS FROM A
LETTER BY J. PAXTON MOIR.

COMMUNICATED BY PROFESSOR E. B. TYLOR, F.R.S.

[PRESENTED NOVEMBER 27TH, 1900. WITH PLATES XXV, XXVI.]

THE extracts which follow are portions of a letter received by Professor Tylor from Mr. J. Paxton Moir, of Hobart, Tasmania, in answer to a request for further information as to a number of Tasmanian implements sent over to England by Mr. Moir; especially as to the localities in which they were found. Mr. Moir replied as follows:—

"I will now answer your inquiries as far as I can, although I have not yet sufficiently examined the camping grounds of the Tasmanian Aborigines to form a correct judgment. In fact, so far I have only reached the borders of investigation, having explored only a few camping grounds found within an area of about seven miles long by two or three miles in width, and that in one only of the southern parts of Tasmania (Buckingham) which county is perhaps the best to select as representative in many ways. Also, I have yet to ascertain what is to be found at a depth below an ordinary plough furrow. I have explored shell-beds to a depth of 3 feet where partly exposed on the river banks, but then found very few stones. I am sending you one found with shells 8 inches below the surface, which is a two-edged knife, probably used to cut up tough shell-fish, or to cut them from their shells. [Apparently that shown in Plate XXVI, Fig. 12.] With this you will receive two I found on the surface of undisturbed ground (*i.e.*, ground in its natural state as it was in the days of the natives, except that it had been swept by a bush fire), probably two dropped while having their last hunt. These two I found about a mile inland, away back from their sea-side camping ground [they are round or oval-shaped and are chipped all round, Plate XXV, Figs. 7, 8].

"The ones found by Mr. Morton in Australia on the Murchison River are mostly of this class, but less in thickness and nicely chipped—one appears to have a ground edge. They are of a stone easily chipped and rich in colour, and some are variegated in colour. Their rich colour attracts attention, but they are no better in make or finish than the better class of Tasmanian implements.

"In answer to one of your inquiries, for general illustration I have dropped in a couple of handfuls of stones just as picked up two or three days ago, without selection, from off a piece of ploughed and harrowed ground of less than quarter acre area. This is part of a camping ground just half a mile from here. They will give you an idea of the large number of 'gravers' made by the Tasmanian

Aborigines. As a rule I find gravers, scrapers and skinners about equal in proportion, *axes* much less in number, large axes very few.

"I send you fifteen just as gathered up in about ten minutes, without making choice or preference, beyond discarding a few wanting in character found with them. The largest may be either a *spear axe* or small hand-chopper, or a large skinning tool [Plate XXV, Fig. 2] and may be held thus with the forefinger at the back of the stone resting in hollow at back of stone, and thumb lying along the front, with *ball* of thumb resting on slope of face—probably to give a sliding or forward push to the stone the moment it descends on the wood—a sort of sliding cut. It may also be held in the palm of the hand at right angles to the wrist. Five are circular shaped and square edged *skinners* or skinning tools. One has one edge a little hollow which may be for cutting the skin round the *legs* of animals—a dirty white stone; and may be held between the thumb and forefinger, with the forefinger and others bent or tucked round at back of stone under the thumb. While some of these and of other tools may be used also as scrapers, there is in this ten minutes' gathering one double concave scraper [Plate XXVI, Figs. 13, 16, 19, are inserted as specimens of concave scrapers and gravers].

"Usually the scrapers are more plentiful, while here no less than six are gravers, four or five of which are almost identical in shape, and are held between the thumb and forefinger, the forefinger being bent or tucked round under the thumb. One or two are sharp-edged cutting flakes or knives, and one in particular has the appearance as of a ground edge with a little chipping; the next two edges are also cutting edges, and the edge to right looks like a small concave scraper.

"If this is a ground edged implement then I have found several; but if not, I may say I have not yet found any that have been ground by the Aborigines of Tasmania. I will make further search for ground tools. If we compare Tasmanian tools with the beautifully ground axes and adzes of the New Zealand and New Guinea natives, then we see how far the Tasmanian Aborigines are behind them; but for variety of form and purpose and ingenuity in chipping, the Tasmanians hold their own against Australian implements, provided we make comparison with unground hand-gripped tools only.

"With regard to stones made to fit or use in a club or handle of any sort, I have never yet seen a Tasmanian stone that could be used that way—every implement is made to fit the hand so far as I have met with them; and I have carefully examined thousands. You mention that Tasmanian-like implements are found in Australia. This is correct, and any *chipped* stone found in any part of Australia can be matched for shape and style in Tasmania (save and except spear heads and war implements). A friend of mine on a visit to Melbourne, Victoria, walked several miles out of Melbourne to some place near the water, and seeing a sunny slope or bank he walked over it, and found several chipped stones, but beyond putting a few in his pocket he made no selection. On showing them to

me I matched most of them with Tasmanian implements. They were but very ordinary in make or finish, and I am sorry my friend did not search for better specimens when in Victoria. The ground had not been ploughed or disturbed in any way.

"Some think with me that probably Tasmania and Australia were one continent many thousands of years ago, or were at least joined by a long narrow isthmus. Many mineral, botanical and other peculiarities agree and are common to both, to say nothing of emus, kangaroos and opossums. A few of the Australian blacks may have been driven down south, and found their way across the isthmus to the Tasmanian end and settled there, and then were afterwards cut off through the breaking up of the connecting isthmus. But of course this is mere conjecture.

"Next month I intend making a careful examination in parts of a camping ground to the depth of 2 or 3 feet, and shall send you specimens of the stone implements found, and each stone will be marked by label stating depth at which it was found and condition of soil with regard to colour and shells. As I have found some of every class of stone implement I know of, at camping ground on Bennett's Farm, North West Bay, about seven miles from here, I will operate there. It is one of the most beautifully situated camping grounds I have yet seen, and is a long tapering point with quiet sea on either side, and easy of access to the water, which deepens so very gradually that the natives could walk out for hundreds of yards without getting out of depth; and all kinds of shell-fish abounded. The land adjoining this point on the upper side has several springs and creeks which supplied them with fresh water at all seasons. The surrounding country abounded with kangaroo, opossums and other game, and probably by driving some of the kangaroos on to this point, they were the more easily captured by the natives."

[Among the specimens exhibited to illustrate Mr. Moir's communication the following are figured on Plates XXV and XXVI—small hand-axes or choppers, Figs. 1, 2, 9, 10; heavy axes, Figs. 3, 4; skinners and knives, Figs. 5, 7, 8, 11, 12, 15; small gravers, knives and scrapers, Figs. 6, 14, 17, 18; duck-bills, Figs. 13, 19; concave scraper, Fig. 16.]

DISCUSSION.

MR. H. BALFOUR: It is impossible not to feel a keen interest in the subject of Mr. Paxton Moir's communication, whether we regard the culture of the Tasmanians by itself, as illustrating the life of a people living under conditions of extreme simplicity in a state of very low savagedom, or whether, taking a wider view, we consider the bearing of the evidence afforded by their condition of culture upon the general question of the developmental history of culture in general. It seems probable that we are justified in regarding the Tasmanians as *survivals* from an early stage in general human evolution, whose progress has, from various causes, been retarded and has remained in a state almost of arrested development,

leaving them as recently living illustrations of man in the remote past. When, however, we come to compare the arts of the Tasmanians with the remains of arts of the primitive inhabitants of Europe, Palæolithic man, it is essential that the great difference between the environmental conditions—climate, geographical surroundings, etc.—under which the two races lived, should not be overlooked, since their requirements must have differed widely. In regard to the forms of Tasmanian stone implements, these seem to be referable to relatively few types, mostly adapted to many uses. The hollow-scraper is adapted to smoothing and rounding spear shafts or for use as a rotary saw for cutting transversely. The so-called "graver" presents some difficulties, in so far as there seem to be few demands in the life of the people for a fine grooving tool. The cross hatching of a club handle to roughen the grip could be better and more easily done with a long-edged tool, and I am not aware that the Tasmanians were in the habit of making longitudinal furrows on their clubs and other implements after the fashion of many Australian tribes.

The most characteristic tool of the Tasmanians, viz., a cutting and scraping tool made from a broad flake, chipped to a bevelled edge from one face only, and usually having a flat unworked back, is one which not only belongs to the low culture of modern primitive races, and to early prehistoric races, but is the most persistent of all stone implements, having survived as a useful tool from early Stone age days through all subsequent periods to the present day, in the age of steel, where we may still find it to the fore as the most approved form of "flint" for use with steel itself for purposes of striking a light. In fact, stone implements exactly resembling in form those from Tasmania are liable to be found associated with finds of other periods besides the earliest, and, while an implement found in the Drift near Clermont may, as Dr. Tylor has urged, bear a striking resemblance to a typical Tasmanian implement, so may a neolith from the South Downs or elsewhere, or a stone of far later date. The special interest of these rude implements from Van Dieman's Land lies, not so much in the positive evidence of their rude and primitive nature, but rather in the *negative* evidence which shows them to be unassociated with native-made implements of higher and more specialised forms, and, in reference to the parallel, quoted by Dr. Tylor from Mr. Morton's find of rude implements on the Murchison River, West Australia, it is of importance to be clear as to whether those rude implements were or were not associated with others exhibiting higher finish and the attributes of more experienced treatment, *e.g.*, grinding and hafting.

Dr. Tylor referred to the manner in which most or all of the Tasmanian stone implements seemed readily to fit the hand, being apparently so shaped by design. It seems to me, however, after examining a large number of these stones, that this is really due in the main to the fact of the hand being a very adaptable organ of prehension, which can be made to suit itself to almost any of the shapes, and I question whether the ease with which the implement can be held in the hand is, except in a few instances, the result of as deliberate and careful a shaping to this end as has been suggested.

The great abundance of stone implements and flakes which is found in Tasmania might lead us to assume a time when the island was somewhat densely

populated, or to believe in a very long occupation, but on this evidence alone the conclusion would be hardly justified, as the implements are, for the most part, such as would have been quickly made and thrown away without regret as soon as the edges began to grow dull, and the great number found is probably to be explained as much by the quantity made and used by individuals, as by a theory of prolonged occupation or dense peopling of the island. In conclusion may I be allowed to point out how greatly the interests, now aroused too late in the culture of this recently extinct people, brings home to us the desirability of doing our utmost to study those primitive races which still remain to us, and not leaving their investigation until it is too late, until, in fact, we have to content ourselves with making, as in the case of the lost Tasmanian race, speculations based largely upon *post-mortem* study.

DR. GABSON: I have experienced the same difficulty as Professor Tylor has in forming an idea of the character of flint instruments from photographs taken of them when lying on an opaque surface, and would like to point out the advantage that is gained by placing them on a sheet of glass with a white background at a distance of 50 cm. or more below them, and photographing them from above. This is not a difficult procedure. It may be done by placing the camera in a vertical position above them with the lens pointing downwards, or the camera may be used in the ordinary horizontal position by prefixing a prism or a mirror to the lens. By far the best photographs of flint implements are stereoscopic views taken in the way I have just indicated.

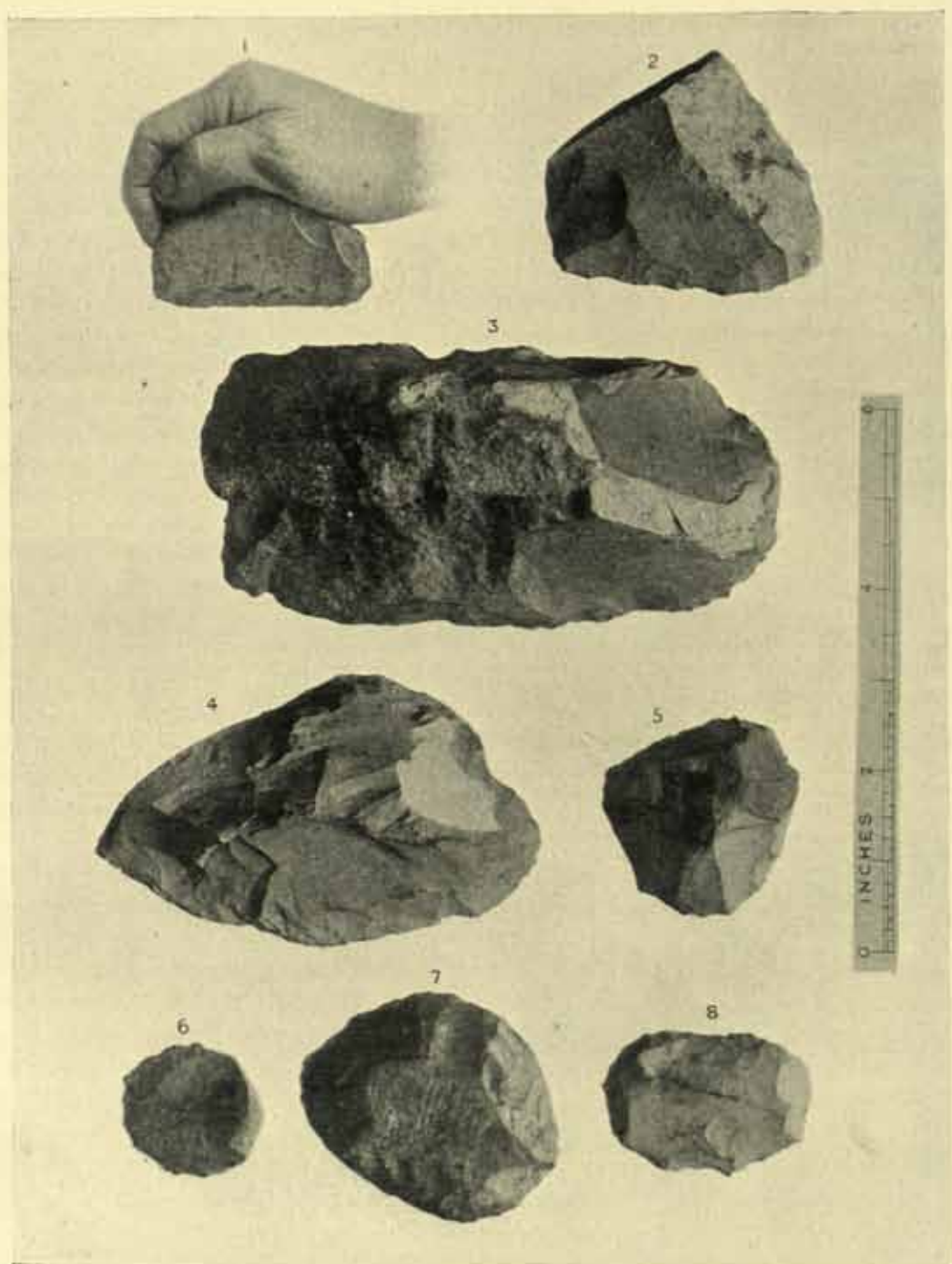
For the purpose of skinning animals a moderately blunt round-ended flint implement, like some of those on the table, worked from one side, would, I think, be the form preferred, except for making the first incision. The side of the implement from which it was worked in its manufacture would probably be that directed towards the flesh in order to avoid injuring the skin, and the implement used with a sweeping motion chiefly from the wrist of the right hand, while with the left the skin would be held and a certain amount of traction applied to it.

The osteological remains of the Tasmanians show very conclusively that whatever the origin of these natives may have been, they had remained in a state of isolation from their fellow-men for a long period, until, in the course of generations, they had acquired certain characters peculiar to themselves, by which their skulls may be easily distinguished from those of other races. After careful study of their morphological characters I ventured some years ago to formulate my opinion that they were most nearly allied to the Negritos, and was pleased to find that Mr. Ling Roth, before I had placed in his hands my article containing my views for his book, and from other considerations, had quite independently come to the same conclusion as myself regarding their affinities.

THE PRESIDENT: The members of the Institute are, I am sure, grateful to Professor Tylor for the trouble he has taken in bringing these interesting implements here, and for the description he has given us of them and of their probable use. Our thanks are also due to Mr. Paxton Moir, who has furnished so much of the material for Professor Tylor's remarks. The productions of a primitive people like the Tasmanians are of the greatest value and importance in anthropology; and these possess a peculiar fascination from the fact that the race has become

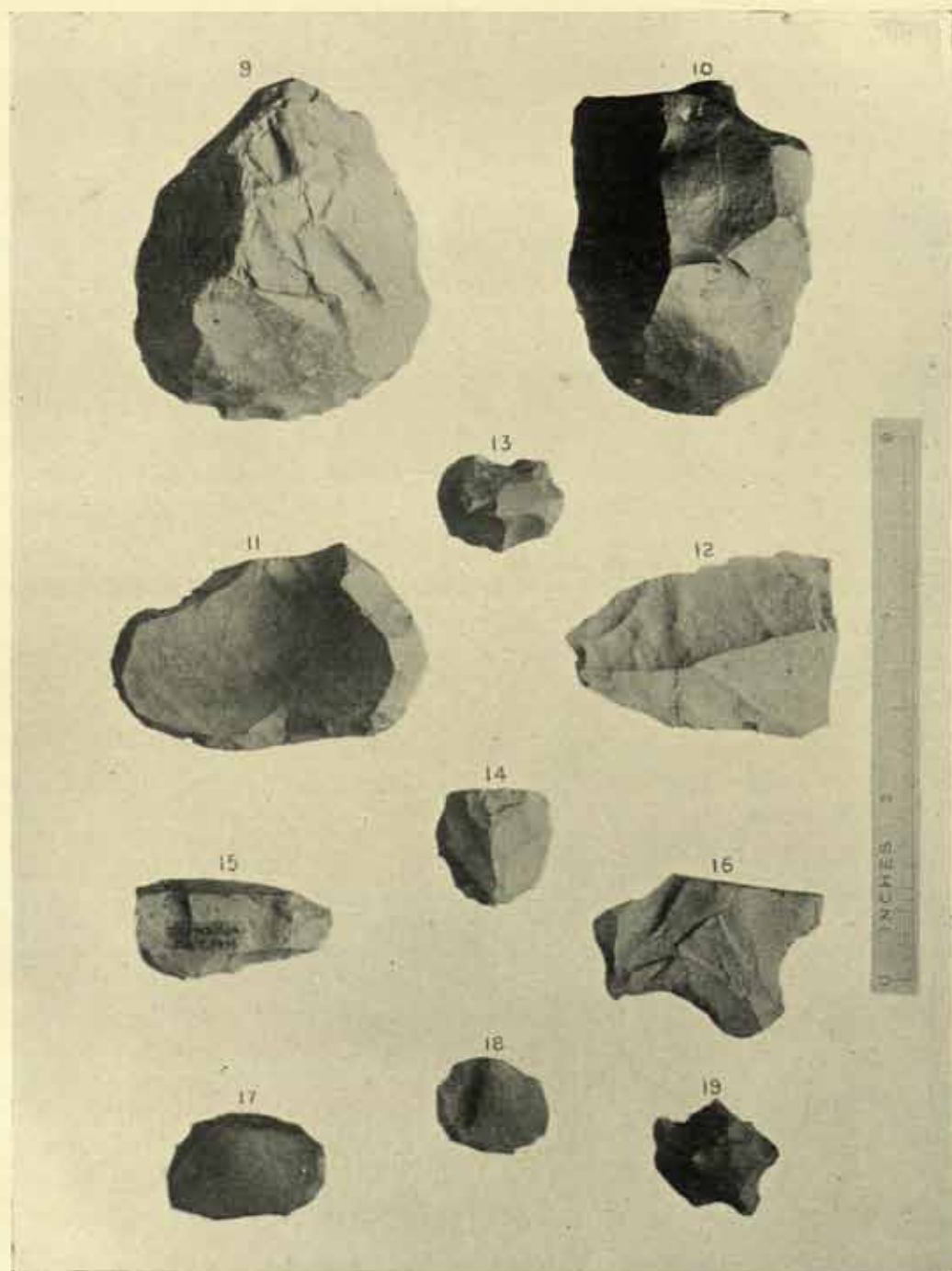
extinct in our own time. It is gratifying to know that practical steps are being taken to preserve the story of the Australian blacks, so that they may not likewise disappear without an adequate record. The year's leave of absence granted to Professor Baldwin Spencer and Mr. Gillen for the purpose of studying the native races of Central Australia is a good omen and full of promise. There are two points in Professor Tylor's observations to which I feel bound to call attention. I am inclined to believe with Mr. Balfour that the way in which such rude implements as we see before us fit the hand is rather due to the adaptability of the human hand than to any refinement of work on the part of the Tasmanian native. The broad bulb on one face of the implement, which Professor Tylor thinks was made of set purpose to fit the palm of the hand, seems to me to be the natural, if not inevitable, result of the natural fracture of the stone, and this seems to be proved by the presence of a corresponding hollow on the other face, the matrix, so to say, of the bulb of the adjacent flake. The other point to which I wish to allude is the statement by Professor Tylor with regard to the finding of certain implements in Australia itself. These, he said, were chipped only, and not polished, and were *therefore older* than the polished implements from the same continent. Here I cannot follow him. The Australian implements, like those of the neolithic age in this country, were chipped into shape and then polished, and many thousands of neolithic age are not polished at all. Moreover, it is certain that the Australian native was polishing his stone implements at the same time that the Tasmanian was content, as far as we know at present, with his chipped unpolished tools. How then can we say without other evidence that there is any difference in date between implements that are chipped only, and those that are chipped and polished?

Professor TYLOR: I should like, before we separate, to express once more my sense of the value of Mr. Moir's work, in searching for these implements on the site of a definite encampment. His results, I think, tend to confirm the opinion that these implements were never ground; and that, while mostly fitted to be grasped in the hand, they could not have been fixed in handles.



STONE IMPLEMENTS FROM TASMANIA.

COLLECTED BY MR. J. PAXTON MOIR.



STONE IMPLEMENTS FROM TASMANIA.

COLLECTED BY MR. J. PAXTON MOIR.

ON THE PAGANISM OF THE CIVILISED IROQUOIS OF ONTARIO.

BY DAVID BOYLE, Curator of the Archaeological Museum of Ontario.

It has often been a subject for doubt whether this or that primitive people, if left to itself, would have emerged into civilisation—in other words, it has proved a matter of uncertainty whether the people concerned possessed the potency of progress. In some cases Dame Nature has relentlessly cut off the supply of raw material before the experiment was well begun, and in others but a short time afterwards, showing us, at any rate, that the elements of success were nullified, and worse than nullified, by contact with superior peoples.

Respecting no division of the human race has there been more diversity of opinion as to innate possibilities of improvement than with regard to our American Indians, or, as a sister society has lately decided to call them, *Amerinds*. But the terms just mentioned are of very wide application—much too wide to make it possible for any one to arrive at a conclusion; for what is true of one stock, or of one group in a stock, may be wholly, or largely, inapplicable to any other division or subdivision.

The Huron Iroquois believe that they themselves originated from a hole under a hill on the north shore of the St. Lawrence river. Their traditions further declare that on account of a great dissension which took place, those who are latterly known more specifically as Hurons, and have been regarded by Brinton and Hale on philological grounds as the senior branch, found their way by circuitous routes to the country which lies north of Toronto, on the south shore of the Georgian Bay; while the portion we call Iroquois took a southerly course and occupied the northern and central part of what is now the state of New York.

Other two not inconsiderable bodies found excellent hunting grounds still farther west, on the northern and southern shores of Lake Erie, the former being known to us as the Attiwandarons, or Neutrals; and the latter as the Eries, or Cats. Other divisions lying south of the main body were the Tuscaroras and Andastes. It is wholly with those who made their home in New York and ultimately in Ontario, that we are now concerned.

It is unnecessary for present purposes to follow the history of these people from the date of their first contact with the French. Let it suffice to say that early in the seventeenth century they became the undying enemies of France, on account of an attack that was made on them by Champlain, who allied himself with the Hurons of Ontario, and thus initiated a series of wars that continued

until the French were compelled to retire from the continent. This almost chronic state of hostilities, however, did not prevent French missionaries from devoting themselves to the conversion of these most untamable of savages, a small portion of whom became Roman Catholics, and have left descendants living now at St. Regis and Caughnawaga on the St. Lawrence. Protestant missionaries also, both Dutch and English, met with some success; but still a very large minority remained true to paganism, so that of those who, on account of their loyalty to us, left the newly formed United States to take up their abode in Canada, nearly one-fourth clung to the belief of their forefathers. To-day the proportion of avowed pagans to professing Christians is about the same, and we have therefore, on the Grand River Reserve in Ontario, a pagan population of fully one thousand persons. There is another settlement on the Bay of Quinte at Deseronto, all the members of which are Mohawks, and profess Christianity.

It will be seen very readily that a condition of society in which paganism openly professed and practised has existed side by side with Christianity for nearly three hundred years cannot fail to possess many features of peculiar interest to the ethnological student, and to afford much material for profound study.

One of the first things that obtrudes itself on the attention of a visitor, even during a brief stay among the Iroquois, is the utter indifference of Christian or of pagan to the religious convictions of each other. In their Council or governing body of fifty-two members both beliefs are represented; yet no recriminations or causes of difference occur on this account. Many of the so-called Christians are influenced largely by old-time predilections, and either attend no place of worship at all or would just as soon put in an appearance at a pagan festival in the long-house. Still it must be acknowledged that there are whole families on the Reserve which are as truly Christian as birth, bringing-up, and Indian nature render possible, but one's opinion of the possibilities need not be unreasonably high.

The pagan does not regard himself, nor is he regarded by others, as being in any degree, or in any sense, inferior. He is not ostentatiously a pagan otherwise than in connection with the regulation feasts, such as those of the New Year (when the white dog is burned), the strawberry-dance, the corn-dance, and many others. Indeed, it is not characteristic of the Indian to be ostentatious in any capacity, except that of a brave, and, for the Iroquois, the days of bravery in his sense have long since departed. In his religious or ceremonial dances he may deck himself gorgeously with bead-work, cheap jewellery, feathers, and highly coloured garments, but there is an evident lack of individuality about him notwithstanding. He seems to regard himself merely as an anybody; as a quite indifferent unit of his clan; as one who happens to have the necessary toggery for such a display, and whose impersonal or clan duty it is to appear in any sort of grotesque costume he pleases. Other men please themselves also by attending

the most solemn feasts in everyday clothing. Most of the younger fellows appear in fashionable tailor-made garb, with linen collars and bright silk neckties. The women dress, as a rule, more carefully and conservatively than the men, their chief article of apparel besides their gowns or dresses being a brightly coloured shawl, either of some strong uniform colour or of a large tartan pattern.

Now as to the worship itself. Originally it was, as a matter of course, purely of a natural kind; that is to say, it was founded wholly on the experience of the race respecting everyday phenomena, the occurrence of which was accounted for by explanatory tales based on anthropomorphic and zoomorphic grounds. Thus the sun would appear to have been regarded as an animate being with whom, in time, became associated the Great White Wolf, if, indeed, it was not itself this very animal. Whiteness, it may be observed, was always associated in the Indian mind with the East, and, in time, with goodness, success, and health. The other cardinal points were also connected with their respective colours. In some mythologies the deer became the mediator of the sun, and in others the turtle. Among nearly all American peoples the rattlesnake was of supreme importance, yet we do not find this creature represented among the totems of the Iroquois. Animism, or spiritism, pervaded every nook and cranny of Indian belief. Not only could the lower animals converse with one another, and arrange plans to benefit their human friends or plots for the discomfiture of their enemies, but the hills, the rocks, the streams, the trees, and every object in nature, as well as those produced by art, possessed a spirit. As a result of this conviction, the Indian was, and is, an arrant coward in the dark.

They also had their equivalent of the "fairies" of the Old World—little people who held the power to assist men, or to play them infinite mischief.

Certain places were, to use a Scottish phrase, "no canny." Among the Iroquois such places were mostly near rapids, or *were* the rapids, but sometimes they were in the form of caverns, or of beetling cliffs, on the shores of rock-bound lakes. On approaching or in passing such spots placatory offerings of tobacco were made, and sometimes objects of considerable value were dropped into the water.

To dreams, our Iroquois, with all his congeners, was an abject slave, for he regarded them as the experiences of the first of his three souls, the second being the one which always remained with his body, and the third that which became visible as his shadow.

Roughly, this was the mental attitude of the Iroquois to nature and natural phenomena until the appearance of Ayontwatha, the "Hiawatha" of Longfellow, who, however, makes an ethnological muddle by assigning an Iroquois culture-hero to Algonkin legend. Ayontwatha was, first of all, a political reformer, if we may so dignify one who lived in such a crude condition of society; but his success in bringing about a confederation of the Caniengas, Senecas, Cayugas, Onondagas, and Oneidas must have exercised a very powerful influence in modifying some beliefs and intensifying others among all these "nations" or tribes.

We know not when he lived, despite attempts that have been made both by Indians and by whites to determine his date; indeed, we are uncertain whether there ever was such a person. But, in any event, there came a time when the spirit of change entered the minds of the Iroquois, and henceforth they became more adaptive and more modifiable than their surrounding Algonkin neighbours. Thus it was, in large measure, that they proved themselves such unconquerable and resourceful opponents of European, and especially of French, aggression.

After falling under purely British influence the number of professing Christians rapidly increased, but, as has already been pointed out, fully 25 per cent. have remained steadfastly pagan.

It is from this point that our study of Iroquois paganism becomes interesting, because it was impossible that Christian and pagan doctrines and practices could long exist in proximity without some modifying influences extending from the stronger to the weaker side. Long before this time, however, the Iroquois, in common with many other native races, had, perhaps unconsciously, adopted the idea of a Great Spirit from the missionaries, for in the aboriginal pantheon no *one* being of this kind exercised supreme power, or even seemed to take any interest in the work of the other spirits, an idea based no doubt on the customs of the Indians themselves, over whom no one man exercised absolute sway.

Having adopted the idea of a Great Spirit, the admission of some other beliefs became easier, not because they had any logical connection at all, for logic is quite foreign to the Indian mind, but because, perhaps, of the familiarity consequent on intercourse with Christians, both white and of their own kind.

It was probably on account of knowledge arrived at in some such way that an Onondaga, by name Ska-ne-o-dy-o, who lived at the end of the eighteenth century (in 1790 according to some), declared himself a prophet and claimed to have had intercourse with divine beings. His congeners, by this time, knew enough about Christianity to be in some measure prepared for a message from the Great Spirit, and their peculiar notions concerning soul-experiences fitted in with the announcement of Ska-ne-o-dy-o that he had been favoured with an interview with four beings in heaven. Undoubtedly the Indians had heard of the Trinity, but as three is an unsatisfactory number to the Indian mind, we here have a reference to four persons, or the Four Angels, for although Ska-ne-o-dy-o *saw* only three, the fourth one was always present.

It is somewhat remarkable that although this revelation is of such a comparatively recent date, there is a good deal of confusion respecting what is known of the circumstances by the friends and relations of the prophet; but this only goes to show us how extremely difficult it is to get at the truth in such matters, and how little confidence we may place in tradition, if we demand exactitude.

All the stories, however, agree in the statement that Ska-ne-o-dy-o's revelation came to him while he was in a trance, so that we need not care whether this condition lasted for only a few hours or until he came to himself

on the fourth day. He did not profess that he had seen the Great Spirit, but only the four beings who were commissioned by the Great Spirit to deliver His message. These were young men, dressed in the height of Indian fashion, and carrying bows and arrows. Here we have a compromise and a correspondence, the former as to the number, and the latter as to the office; for Christian teaching always introduces a medium of communication between the Creator and His people. As a matter of course, the four persons were Indians, and behaved in Indian manner, for otherwise the appeal to Indian minds would have lost much of its effect. Still Ska-ne-o-dy-o perceived clearly enough that his people required a new gospel—one that would correspond in a measure to the altered circumstances in which they found themselves, and that would, to some extent, place them on a level with white men. Himself, no doubt, unaware that a belief in the Great Spirit was one of comparatively recent acquirement, he urged the people to offer prayers to Niyoh, the Creator, but he adds a touch of Indian anthropomorphism when he teaches that all such addresses must be made before noon, on the ground that as the Great Spirit goes to sleep in the afternoon, he cannot then hear anything said to Him. These prayers were nearly an adjunct to the old-time dances, which were to be maintained; for the angels said to Ska-ne-o-dy-o, "You must worship Niyoh, the Great Spirit, by dancing the turtle-dance at the new moon when the strawberry ripens. At the new moon of the green corn you shall give a thanksgiving-dance. In the midwinter at the new moon you shall give another thanksgiving-dance. You shall have a thanksgiving-dance at the new moon at the time of making sugar. You shall dance at the new moon of planting-time, and pray for a good harvest. You shall dance at the new moon of the harvest-time, and give thanks for what the Great Spirit has given you." Among primitive peoples dancing is itself, as a distinguished writer has said, "praying with the feet." Oral prayer was therefore, largely, the result of European influence, something with which the Indian had become to some extent acquainted, and something that was of comparatively easy assimilation.

Even the matter of the prayers, however, is in the nature of a compromise, for the addresses to the Great Spirit are rather in the form of requests that He will command other entities to do their duty, the performance of which, but for His orders, might be done either reluctantly or not at all. Take, for example, bearing in mind, meanwhile, the animism which pervades the Indian mind, the following petitions in the prayer which is used at the Burning of the White Dog in connection with the New Year festival:—

"We ask that the sun will continue to shine on us and make all things grow.

"We ask that the moon may always give us light by night.

"We ask that the clouds may never cease to give us rain and snow.

"We ask that the winds may always blow.

"We ask that the trees and plants may always grow.

"We ask that Thou wouldst send all sorts of animals for food and clothing, and make the birds increase in number."

In this modern form of prayer it will be observed that Rawen Niyoh, the Great Spirit, is addressed as controller and director; in older (but not the oldest) forms of address, which certainly are not prayers, the animistic and individually independent idea comes out strongly, as when, for example, at the green-corn-dance the head man, or speaker, says, "We thank the earth for all the things that grow for food," and at a Cayuga sun-dance, at which I was present, the old chief opened the ceremonies by thanking the earth for having yielded grass, trees, tobacco, and medicine, the sun for giving light and heat, the moon for making dew, and the thunder for supplying rain and for preventing serpents from coming up through the ground and destroying the people. And then comes this: "We thank the Four Angels for protecting us from sickness, disease, and accident, and the Great Spirit for providing everything and governing all things, although we cannot see Him and never will see Him unless we are good." Here the stock and the grafts are quite distinguishable; the ancient phrases remain much as we may suppose them to have been for centuries, while Rawen Niyoh and the Four Angels are a plain addition without the remotest attempt to modify the old or assimilate the new.

The animistic and the anthropomorphic assert their sway once more when we are gravely informed that Rawen Niyoh also thought it would be a good plan to have some Thunderers, to whom he gave power to take charge of the whole world, telling them to use plenty of cold water in their work, as long as the world and the people should last. "He said to the Thunderers, 'You may go among the people just whenever you like, and give them all the water they need'; and we know that all the plants and trees are pleased when the cold water comes to the earth. They are glad the Thunderers have not forgotten them. Niyoh also told the Thunderers to kill anything that might be unlucky to the people."

The Indian Angels vouchsafed to Ska-ne-o-dy-o other information, some of which had reference to what we may suppose the best of his people had always believed, but some of it undoubtedly inspired by Christian influence. Thus they told him that Niyoh intended men and women to marry and have families; that the children were to be treated kindly, not to be provoked in any way, not to be despised for ugliness or awkwardness, never to be whipped; that homeless children should be adopted by married persons without families; and that no person in want should be turned away hungry from one's door. In all this, as well as in what appertains to the holding of dances, or festivals, we have what is native, or nearly so; but when Ska-ne-o-dy-o declares that the four persons said, "Your people must not play cards," and "Niyoh says it is wicked to play a fiddle, and wrong to drink rum," he is profiting by his contact with white people. The reasons adduced for the last-named inhibition are truly Indian. "If," said the prophet, "you are drunk when you go hunting, the animals will smell you a long way off and keep out of your way; if you go a-fishing the fish will hide; if you are driving a horse the smell of the rum will make him run away; your dog will

not like you; your corn and pumpkins and tobacco will not grow; if you try to dance or to run, or to sit still, you will have no sense; everything will go wrong."

It might be difficult to find a better illustration of purely aboriginal and illogical reasoning than this is. Incapacity to hunt, fish, manage a dog or a horse, or to cultivate plants is attributed to the intelligence of these things; they *know* that the man has been drinking too much, and for this reason fear him, or despise him; and it is only when the man tries to sit still, or to run, or to dance when drunk, that he himself will discover his lack of sense.

The inhibitions respecting cards and the use of the fiddle were no doubt intended by the "four persons"—*i.e.*, by Ska-ne-o-dy-o—to prevent too much social intercourse with white people, the former on account of the Indians' well-known gambling propensities, and the latter owing to their equally notorious desire for the strong drinks which usually accompanied such festivities a century ago. It was no doubt also intended to prevent any assimilation of the native feasts or dances with the white peoples' social gatherings—perhaps, indeed, this was the main consideration.

Gambling in general, however, was not forbidden, only gambling with cards. The Indian prophet was too well aware how utterly impossible it would be, even were he wishful, to abolish this practice among his people. Twice a year at the great public feasts it was allowable to play for stakes; and at home, or elsewhere, they could always do as they pleased in this respect.

The feasts or dances so often referred to were, and are, a stern necessity. Without these, life to the pagan Indian would not be worth living, and one of them is held on every possible occasion in addition to the regular, seasonable, ceremonial affairs to which reference has already been made. But in accordance with present custom some of the latter are set apart for thanksgiving. Now the giving of thanks (in our sense) for anything is wholly foreign to Indian nature, as indeed it is perhaps to aboriginal nature everywhere. It is an acquired method of expression, and whether the *sentiment* of gratitude has yet been acquired is another question.

Agreeably to the totemic idea thankfulness is out of place, or rather has no existence in any of life's conditions. For primitive man in his tribal relations, individualism has but a hazy meaning, if any at all. He gives as freely as he takes, neither expecting nor giving thanks, but his associations with us have taught him to comply with form at least, and thus in some measure to remove from himself the reproach of the white man respecting Indian "ingratitude." We find, therefore, that Ska-ne-o-dy-o has introduced expressions of thankfulness in connection with some of the ceremonial feasts, but it is also observable in the older and slightly adulterated dance-speeches that not a word of this kind occurs. Take, for example, the address of the head man at the Burning of the White Dog, notwithstanding its ostensible appeal to Niyoh. Following what may be called the invocation, he asks that the sun, moon, clouds, and winds may continue to perform their duties; that the warriors, young men, and women

may be preserved in health and strength; that medicine-plants and fruit trees may continue to grow; that game may be abundant for food and clothing; and he concludes with the self-righteous and unconsciously humorous wish, "May the scent of the tobacco I have thrown on the fire reach Thee to let Thee know we are still good, and that Thou mayest give us all that we have asked."

With the introduction or adoption of the belief in a Great Spirit—"One, you know, that bosses all the other spirits, and the little peoples, and Ta-ron-ya-wi-gon, and Ongwehógon, you know," as a Seneca once explained to me—it became necessary to provide some means of communication between heaven and earth in addition to prayer and thanksgiving, which, alone, are somewhat too intangible for this purpose. The Burning of the White Dog was therefore seized as a fitting occasion for the sending of messages heavenwards. But this long antedates the appearance of Ska-ne-o-dy-o, who actually forbade the ceremony, probably because it was a subject of ridicule among white people. Notwithstanding both circumstances, our Canadian Iroquois pagans maintain the custom in connection with their annual New Year's dance at the time of the February new moon, when near the close of a ten days' celebration the master of ceremonies reverently says—

"Great Master, behold here all of our people who hold the old faith, and who intend to abide by it.

"By means of this dog being burned we hope to please Thee, and that just as we have decked it with ribbons and beads, Thou wilt grant favours to us, Thy own people.

"I now place the dog on the fire that its spirit may find its way to Thee who made it, and made everything, and by this means we hope to get all we want from Thee in return."

In full accordance with Indian belief, the spirit of the dog, on reaching Niyoh, will apprise him of the state of affairs on the earth, a belief that not only proves a want of faith in the adequacy of prayer alone, but which could not have had any reason for its existence before Rawen Niyoh himself was introduced to "boss all the other spirits." But the killing, burning, or sacrifice of a white dog has always, and everywhere over the northern part of our continent, possessed some mysterious influence. In my archaeological report for 1898 I have taken some pains to summarise our knowledge of this custom, whereby it appears that not only with the Iroquois, but among the Algonkian, Athabaskan, and Siouan peoples, as well as among the more highly cultured Aztecs, the custom of using such an animal in one or other of these ways was very generally observed.

It may suffice in this connection to state that in the opinion of General Clark, of Auburn, New York, who has made a special study of Iroquoian mythology, the white dog is now employed as a substitute for the white wolf, which formerly represented the sun; and Dr. Brinton, quoting Von Tschudi, approves the statement of the latter that "white dogs were closely related with cosmogonical and culture myths" in many native religions.

However this may be, the point to be observed here is that our present-day pagan Iroquois, having long since forgotten the original significance of the rite, now attribute mediatorial or intercessory powers to the white dog, the spirit of one of which they despatch annually to carry a message to Niyoh, or Rawen Niyoh, the Creator. Nothing can be more certain than this, that when there was no Great Spirit there was no need for the services of a messenger.

But notwithstanding the evident influences which led to this new idea respecting the office of the white dog's annual visit, implying as it does a heaven, as distinguished from a mere "happy hunting-ground," it is worthy of notice that our Indian friends did not take kindly to the idea of a hell, which they have left in the undisturbed possession of the white man. Punishment in any case was objectionable to the Indian. It may be difficult to reconcile this statement with our knowledge of the cruelties he inflicted on his enemies, whether white or of his own blood; but his purpose on such occasions was rather to maintain the honour of his totem, or of his tribe, by rendering or providing an equivalent for the sufferings of his own people when they were in the enemies' hands, as well as with a view to test the power of his captives' endurance, hoping, if possible, to make them evince signs of pain, and thus prove themselves to be only women. Our pagan Iroquois, then, has no hell, but his leniency in this respect is more than counterbalanced by his exclusiveness respecting heaven, where he admits no white man. On the New York Reserve it is asserted that George Washington, on account of his goodness to the Indians, has been permitted to go half-way, where he remains speechless, and accompanied by his dog; but on the Grand River Reserve in Ontario, I have never heard but one Indian refer to this exception, and it is not improbable that in time it will be wholly forgotten among Canadian pagans.

The remark has often been made that certain groups of people in various parts of the world have failed to keep pace with neighbouring groups through sheer inability to advance beyond a given line. Among ourselves civilisation is a comparatively slow process, and with some of us it is of much slower development than it is with the mass. American Indians are not a progressive people. They assimilate European notions very slowly, and, at best, somewhat imperfectly. Tradition and usage are more powerful than appeals to action along new lines, even when the advantages of the latter course are made plain. It is only when tradition has been deprived of its power by the segregation of individuals from national or tribal associations that tradition itself ceases to govern.

If we judge the pagan Iroquois thus, we shall wonder that they have been in any way modified by European contact so far as their religion is concerned, for they are thoroughly separated from their Christian fellows in all that concerns their myths and superstitions. It is not with them, as it is with us, a matter of disputation concerning what constitutes the true religion, for according to their philosophy it is not necessary that all should be of one faith. The white man's God need not be—indeed, is not likely to be—the same being as the Indian's

God, and here we see how very superficially after all the idea of a Great Spirit affects the aboriginal mind. It has never been made to fit exactly into the Indian pantheon, which recognises no paramount being, but leaves the thousand-and-one phenomena to the good or bad offices of a thousand-and-one independent spirits, or, perhaps it would be more correct to say, to spirits each of whom is independent in his own sphere, for it is within the power of any one of these beings to create so much trouble on his own account as to compel one or more of the others to "come to time" in any matter of dispute.

The wonder, then, is, not that Iroquois paganism has been to some extent modified by Christian influences, but that it has been modified so little. One must mingle with these people in their homes, in the fields, at their games, and in their long-houses in connection with their feasts or dances, to appreciate fully their mental attitude in this respect. They are utterly unconscious of any similarity between their own and the white man's religion. They believe that Niyoh, the Great Spirit, has always formed a part of Indian belief, and consequently have no difficulty in accepting the story respecting the four persons or angels he commissioned to communicate with Ska-ne-o-dy-o. Similarly they have no hesitation in the offering of specific thanks to Rawen Niyoh, and have perfect faith in the intermediary services of the white dog. If we added to these a few suggestions respecting conduct, based on the Christian code of morals, we have about all for which Iroquois paganism is indebted to European culture after a period of more or less direct contact lasting for three hundred and fifty years. It is questionable whether many other forms of paganism have remained so unchanged for the same length of time, and in anything approaching similar circumstances. It is, indeed, a matter of doubt whether several forms of Christianity and Mohammedanism have not suffered or benefited to a greater extent, even during the space of the present century.

Here we have in almost their pristine simplicity and crudity the music, the songs, the dances, the speeches, and the ceremonies of old, but the origin and meaning have long since been forgotten. Their maintenance is purely conservative. Even the significance of the *words* of the song is lost, and in many of the ceremonial rote-speeches in connection with the feasts, words and phrases are employed respecting which even the oldest medicine man has no knowledge. In this, however, they are only a few degrees worse than ourselves. The same is true with regard to such customs as the "scattering of ashes," the spraying of heads with sweetened water, the anointing of heads with sunflower oil, and several other rites.

It is interesting, also, to note that all these are indulged in by the half-breeds, and by some who are more than half white, seemingly with quite as much zest as by those of purer or wholly pure Indian blood. It seems somewhat anomalous, at first sight, to observe, engaged in a dance or a dream interpretation, persons of all shades of colour, from the darkest (which is darker

than mulatto) to a tint that conveys only the slightest suspicion of Indian blood.

But the old-time ways are doomed, and will probably disappear as a system long before the people die out, for the young men mingle more and more with their white neighbours, the young women frequently find employment as domestics in "white houses," and parents are gradually losing their grip of the ancient forms, although they cling tenaciously to the superstitions these typify.

Meanwhile the condition is an extremely interesting and instructive one to the anthropologist, one which in many respects is unique in the history of the world.

I have frequently regretted that when the British Association met in Toronto a few years ago, no arrangements were made for a visit of the Anthropological Section to the Six Nations' Reserve, only some sixty miles distant, when it would have been a matter of but little difficulty to arrange for a special pagan feast, and where the members might have been able to realise, to some extent, much that has been either only slightly adverted to or imperfectly explained in the present paper, respecting the pagan rites and ceremonies of the Iroquois—or, as one has called them, the "Romans of America."

NOTES ON THE HISTORY OF VUMBA, EAST AFRICA.

By A. C. HOLLIS.

[WITH PLATES XXVII, XXVIII, XXIX.]

THE Mohammedans, as is well known, displayed, for some centuries after the death of their great prophet, a remarkable activity in attempting to subjugate and, at the same time, to evangelise the world. Thus, the Moors predominated in northern Africa and extended their conquests to Spain and to other countries in southern Europe; the Saracens drove the Byzantine emperors from their Asiatic dominions and made themselves masters of the places held sacred by the early Christian Church; and the Arabs and Persians emigrated to and colonised various parts of India and Africa.

A few of the latter people, coming from the plains of Shirazi, settled, about the time King John ascended the throne of England, near the mouth of a river on the mainland of the east coast of Africa, almost opposite Pemba (a large island north of Zanzibar), and some fifty miles south of Mombasa, the capital of the East Africa Protectorate and the terminus of the Uganda Railway. This river, the mouth of which divides the British and German spheres of influence, is known by the name of *Umba*, whilst the district watered by its delta is called *Vumba*.¹

To the present day, on the banks of the Mchamalale² stream (one of the arms of the Umba river), in an almost impenetrable jungle between Vanga³ and Jasin,⁴ are to be seen the remains of what formerly must have been a large city. This

¹ The Umba river rises near Mlalo in the Usambara hills, a range running at right angles to the coast from Tanga (a town thirty miles south of the Anglo-German frontier) towards Kilima Njaro, the highest mountain in Africa. The name is believed to be taken from the Kiswahili, or native word, *Maumba*, meaning sea-urchins, which are found in large quantities on its banks, whilst Vumba is thought to be a corruption of *Kuumba viungu*, to make pots, the soil being particularly adapted to pottery work of all kinds, large quantities of earthen utensils being shipped from the neighbouring ports to Zanzibar, Pemba and Mombasa. The Portuguese, it would seem, originally called the district *Uumba*, i.e., the country of the Umba; it is, therefore, possible that both Vumba and Umba are derived from the same root.

² Mchamalale is commonly, but erroneously, written Msemelale.

³ Vanga is sometimes incorrectly spelt Wanga (*vide* also *Le Roi : Le Kilimanjaro*). This is the most southerly town in British territory. *Kuvanga*, in Kiswahili, is the same as *Kupanga*, and means, literally, to pile up (loads), hence, to rest or stay. The word is believed to refer to the fertility of the soil. Of this town more anon.

⁴ Jasin is a small town in German East Africa, three miles from Vanga.

was Vumba Kuu, or Great Vumba. Vumba Ndogo, or Little Vumba, is the name of the Wasin¹-Kigomeni²-Vanga district.

When, in 1895, Sheikh Mbaruk bin Rashid el-Khelani-el-Mazrui of Gasi³ joined forces with a distant cousin, Sheikh Mubarak bin Rashid el-Mazrui of Takaungu,⁴ and rebelled against the British Government, which had lately superseded the Imperial British East Africa Company,⁵ one of the first aggressive acts on his part was to plunder and sack Vanga,⁶ whilst, shortly afterwards, our troops burnt Ormuz,⁷ the chief village in the Pongwe district.⁸

With the destruction of these two towns many priceless books and documents belonging to the Arab settlers were lost, amongst them the Chronicles of Vumba Kuu. These, I am told, were contained in a single manuscript volume and gave a list of the names of the chieftains of this place together with the dates of events which happened during their reigns, from *circa* 600 to 1100 A.H., or A.D. 1204 to 1688.⁹

In order, therefore, to save, to a certain extent, the history of the country, known to but a few of a generation rapidly passing away, I have written down the story as related to me by the aged Shereef Abubakari bin¹⁰ Kasim bin Diwan Kikambala el-Masela-ba-Alaui,¹¹ by his brother, Shereef Alaui bin Kasim bin Diwan Kikambala el-Masela-ba-Alaui, by the Liwali of Vanga, Abubakari bin Ali el-Hasraji-el-ba-Urii (a descendant of Diwan Ruga and a cousin of Diwan Marithia), by Shereef Abubakari bin Diwan Kilimia el-Jadid, by Buhuri bin Nyale bin Mwalimu Mwahathi el-Bajun, the chief elder of the Wasegeju of Pongwe, and by Kalamu Mwacholozzi, the *Kubo* or Chief of the Wadigo,¹² all of whom are well versed in the traditions and folk-lore of the land.

¹ Wasin (frequently written Wassein) is an island off the British coast not far from Vanga. For a description, *vide* page 284.

² Kigomeni is a small fishing village in German territory, near Jasin.

³ Gasi, commonly, but erroneously, spelt Gazi, is situated half-way between Mombasa and Vanga. From 1837 to 1895, it was the seat of the elder or *el-Khelani* branch of the Mazrui (or, to use the correct Arabic form, Mazaran) chieftains.

⁴ Takaungu, the seat of the younger branch of the Mazrui, is a town some thirty miles north of Mombasa.

⁵ *Vide* Blue-Book No. 6 (1896). *Correspondence concerning the recent rebellion in East Africa.*

⁶ *Ibid.*, p. 12.

⁷ *Ibid.*, p. 52.

⁸ Pongwe is the name of a part of Vumba Ndogo. The meaning of the word, which is pronounced by the natives *Pongwe*, is unknown.

⁹ The Mohammedans reckon from the *Hijra* or era of the flight, which took place on Friday, July 16th, A.D. 622. The year contains 354 $\frac{11}{30}$ days.—*The Indian Calendar.*

¹⁰ *Bin* (Arabic *ibn*) means son of; *binti*, daughter of.

¹¹ *Alaui* is a contraction of the Arabic *Alui*.

¹² The Wadigo and Wasegeju are the principal native tribes inhabiting the Vumba district. According to tradition, the Wadigo, one of the numerous allied clans known collectively as the Wanyika, or desert people, who fringe this part of the African coast, were already settled in the country when the first of the Sultans of Vumba Kuu was chosen. They are believed to have come from Digi and Kirau in Shungwaya, the native name for the plains lying on the left

When I knew their story, I set to work to try and find the lost volume. In this I was unsuccessful, but, after some search, a manuscript book—a treatise on religious matters—was discovered at Vanga. This, as the author¹ informs the reader at the end of his essay, was finished at Pate,² after mid-day prayer, on the 7th day of the third month, 1133 A.H. (1721 A.D.). Down the margins of the pages of this book are jotted the dates of various events concerning the ba-Alaui, min-Ali-Sheikh-Abubakari-bin-Salim, el-Jadid and el-ba-Urii families, together with some pedigrees, which verify and corroborate the statements made by my informants. One other discovery was made, viz.:—a list of the nicknames of all the chieftains of Vumba Kuu in the handwriting of the last of the Diwans who died in 1897.

As will be seen later, I also refer, at times, to other books and documents, one especially, called *The Story of Mombasa*,³ by an unknown author, having been of great service to me. For the allusions made to the Portuguese state papers I am indebted to Mr. Justus Strandes, the author of *Die Portugiesenzeit von Ostafrika* (Berlin, 1899).

The chieftains of Vumba Kuu⁴ were considered as important as most of the rulers on the coast. Their successor of to-day, the Diwan⁵ or Pontiff of Vumba Ndogo, is merely the head of two or three large clans of Shereefs, i.e., descendants

bank of the Tana, a river some two hundred miles north of Mombasa. The Wasegeju, or, as they were formerly called, the Wakilio, claim descent from the Somali. For an account of the arrival of these people, *vide* page 281. The name, Wasegeju, is derived from *Kusega*, to draw up the clothes, and *Juu*, high. This name was given them, owing to their wearing the skins round their loins higher than usual. The aboriginal inhabitants of this country are thought to have been the Wasi, who were divided into three groups, the Wamaraka, the Wamaumba and the Watwa. A few Wamaraka are now settled at Ada, a town some fifty miles west of Gasi, the Wamaumba live with the Wachonyi, one of the Wanyika tribes, some thirty miles north of Mombasa, whilst the Watwa are to be found in small numbers round Lamu, a well-known town not far from the mouth of the Tana river.

¹ The author was one Abubakari bin el-Fakihi Mwalimu Saleh bin el-Fakihi Mbwana Kombo bin el-Fakihi Haji bin Saburi bin el-Fakihi Suhele bin Sheikh el-Maruz-el-ba-Urii.

² Pate is a town of great antiquity on Siu Island near the mouth of the Tana river. It is sometimes erroneously written Patta or Pattah, and Siu is often wrongly spelt Siwi.

³ In this story, written in Arabic, the annals of Mombasa are recorded from the time of the coming of the Portuguese till the death, in 1856, of Seyyid Said, the first of the Albusaidi Sultans of Zanzibar. Although not given at such length as in Owen's *Narrative of voyages to explore the shores of Africa, Arabia and Madagascar*, in Kraft's *Reisen im Auslande*, or in Guillain's *Documents sur l'histoire, la géographie et le Commerce de l'Afrique Orientale*, they are interestingly written.

⁴ The chieftains of Vumba Kuu were called *Mwana Chambi* until circa 950 A.H. (1544 A.D.), when the name was changed to *Mwana Chambi Chandi*. About 1112 A.H. (1700 A.D.) it was again altered to *Diwan*. The other principal chieftains on the coast were those of Pate, Saadani or Utondwe (the Otondo of the Portuguese), Zanzibar or Unguja, and Kilwa. The name given to those of Pate was *Meenyi Mui*, and, at a later date, *Fumo*, to those of Saadani, *Mui Kamba*, and to those of Zanzibar and Kilwa, *Mfalme*. The less important chiefs of Tanga were called *Meenyi Chambi*.

⁵ The name *Diwan* was borrowed from Pate. It means in Arabic *reigning house*. In Indian phraseology the East India Company was called *Diwan*.

of the Prophet's race. He is, however, held in high esteem by these people, and is much revered and almost worshipped by the ignorant Wadigo and Wasegeju.

The territory and jurisdiction of the Sultans of Vumba ranged, in olden times, from Mawe mawili, two rocks off Kwale, some ten miles north of Tanga, German East Africa, to Likoni, the south side of Port Kilindini, near Mombasa, and inland, from the Usambara hills, in the south, to what is now the Duruma country, west of Mombasa, in the north.

Although these chieftains acknowledged the Portuguese, and after the final withdrawal of the Portuguese from Mombasa in 1729 A.D.,¹ the Mazrui governors of that town as their over-lords, yet they were practically independent until 1253 A.H. (1837 A.D.),² when Mombasa was captured by the Albusaidi prince, Said bin Sultan, and the hereditary governor, Abdullah bin Hamis, was obliged to settle at Gasi. From this time dates the decline of their power. The Diwans of the present day, however, still receive many and often valuable gifts from the superstitious natives and others in exchange for charms. They also retain an ancient prerogative of becoming the owner of any slave, who, wishing to change masters, goes through the form of beating three times on the drum, which, for this purpose, stands outside the royal residence.

The chief qualification of a Diwan is to be a Shereef, descended, either in the male or female line, from the first Shereef Sultan of Vumba, Seyyid Abubakari bin Sheikh bin Abubakari el-Masela-ba-Alaui, otherwise called Diwan Ruga, who reigned from circa 1112 A.H. (1700 A.D.) till his death in 1155 A.H. (1742 A.D.). The only other qualifications necessary are that he be rich and that certain ancient customs be adhered to and rites performed before his election.

These are as follows:—In the first place, the candidate must marry the daughter of a Shereef or an Arab. This marriage is called *arusi ya ada*,³ and the bridegroom himself receives the title of *micole*, which is a promotion from the ranks of the *vijana*.⁴ The fee referred to in this marriage ceremony means a great feast to all and sundry who wish to partake of it. If oxen are slaughtered, the marriage is called *arusi ya njombe*,⁵ and the bridegroom receives more honour than at an *arusi ya ada*.

Should the bridegroom give a second feast to all his youthful friends, he is promoted another grade and is called *mtenzi*,⁶ in which case no *kijana* may sit at table with him.⁷

¹ Portuguese State papers. Bibliotheca Nacional de Lisboa. Codice Manuscripto, No. 465.

² *The Story of Mombasa*.

³ Literally marriage of the fee, meaning a marriage for which a fee or customary present is paid.

⁴ Plural of *kijana*, an unmarried youth.

⁵ Literally marriage of the ox.

⁶ *Mtenzi wa kukirinu watu* means one who produces various kinds of food at a banquet. Vide Krapf's *Swahili-English Dictionary*, page 254.

⁷ A man who marries but does not give the customary feast is called *mondo*. He is not at all respected and is bound to do the bidding of a *micole* or *mtenzi* without murmur or complaint. If a man has once arrived at the rank of *mtenzi*, he can demand an invitation to any feast given in his natal or adopted town.

After the marriage ceremony a certain period elapses before the candidate is called upon to prepare another feast. This occurs if his wife gives birth to a son.

At the next function which takes place, all the living descendants of Diwan Ruga and the members of the houses Ba-Amiri and Mwenyi Chandi¹ are called together, and at a great feast, at which they are given presents of money and clothes, the name of the candidate is submitted to them for approval. If they are satisfied with their presents and with the candidate himself, the latter is formally invested with the *vunda*.² He has now the right to wear wooden sandals instead of leather ones and is styled *Diwan*. Messengers are then sent to the Mohindzano clan of the Wadigo and to the Mwakamathi clan of the Wasegeju³ to request the pleasure of the company of their chiefs at a small feast to be given in their honour. During the course of this feast the chiefs are informed of the election of the Diwan. They are further told that the enthronement will take place on a certain day at Vumba Kuu.

Other gifts have to be sent to the elders of Mbayayi,⁴ Kirui,⁴ Muso,⁴ Mkumbi,⁴ Manza,⁴ Alene⁵ and Funzi,⁶ to the representatives of the twelve towns or tribes of Mombasa and Kilindini⁷ and, until lately, to the reigning chief of the Mazrui and to the Albusaidi Sultans of Zanzibar.

On the day appointed for the enthronement, the Diwan proceeds to Vumba Kuu, a road having been previously cut through the thick, tangled wood. He is led by the members of the Ba-Amiri and Mwenyi Chandi families (these people being the only persons permitted to enter the sacred precincts of the ruined city) to a small pile of stones, all that is left of what was once the grave of Mwana Chambi Chandi Ivor, the most powerful of the Sultans of Vumba.⁸ Here his feet are washed and he is crowned, *i.e.*, a worked skull-cap is placed on his head round which a turban is tied.⁹ He then tells the senior member of the Ba-Amiri family present, who has had the honour of crowning him, what name he wishes to be

¹ The chieftains of Vumba Kuu are believed to have all belonged to the Ba-Amiri or Mwenyi Chandi families.

² A silver chain worn above the right knee.

³ Like all other native tribes in this part of Africa, the Wadigo and Wasegeju are divided into clans, which clans are often subdivided into families.

⁴ Towns in German East Africa between Tanga and the Anglo-German frontier.

⁵ A town on the Pongwe creek. The inhabitants are called Wamwiyuni.

⁶ A town on the bay of Funzi. The inhabitants are called Wakifundi.

⁷ The Waswahili or natives of Mombasa and Kilindini are divided into twelve towns or tribes, viz. :—Mombasa (or Mvita), Mtwapa (or Mtwafi), Kilifi, Pate, Shaka, Paza, Akatwa (or Somali), Gunya (or Bajun) and Junda (or Jomvu), Kilindini, Tangana and Changamwe.

⁸ I am informed that this grave, together with several others, was broken down by the employés of the German East Africa Company in 1896, in order that the stones might be used for building purposes at Jasin, one of their stations on the frontier. The natives say that bad luck will always follow the occupants of the house built from the stones of Vumba Kuu. A stone bearing an inscription, which was taken from these ruins, was sent by a former Governor of German East Africa, Major von Wissmann, to one of the Berlin museums.

⁹ This is called *kupiga kilemba*, to tie the turban.

called,¹ after which he is carried on a native bedstead, shaded by a large umbrella, to a place not far distant, where a great feast has been prepared, and where hundreds of expectant people are now assembled. The head of the Ba-Amiri next informs the chiefs of the Wadigo and Wasegeju that their Sultan has been crowned. These two men, in their turn, impart the news to all present, and, seizing a spear, each swears that he and his people will uphold their lord and master and defend him from all enemies. The great feast, called *Mshomara*, is then commenced, and two thousand ells of cloth (worth about two thousand rupees) are given to the Wadigo and Wasegeju elders. After the feasting has been kept up for some time, all the parties indulge in dancing to the accompaniment of the Sultan's musical instruments. These consist of two or three large drums, known as *ngoma kuu* and *goma*, several smaller ones, a long horn or *siva* and two pairs of *matuwazi* or cymbals. After the dance the Sultan is carried home on the bedstead.

Wherever he goes he is now attended by slaves carrying the horn, a chair and the umbrella.²

If the Diwan's wife gave birth to a son, one more feast has still to take place. This follows shortly after the coronation festivities and is called *Kumbi la ada*, the feast of circumcision.

On the death of a Diwan there is a general mourning for forty days. During this period no Arab, Mswahili or native of Vumba may use more than one cloth to cover himself with; nobody may shave, nor may a cap or turban be worn. The house is watched from the outside by men, whilst the rooms are guarded by women. After fourteen days have elapsed, a great feast is given, and the Wadigo—especially the Birini clan—are permitted to take anything they like from the neighbouring plantations. As long as the feast lasts, a certain number of Wakifundi³ have to stand at the door of the house, and, as a sign that they are a conquered race, they may not complain if rice or other food is thrown or dropped on them.

But one more custom is worthy of mention. An Arab or native of Vumba when speaking to his sultan has to uncover and remain thus until he receives permission to again wear his cap and turban.⁴ The Diwan is always addressed as *Mwenyi* (Lord).

The first Sultan or Mwana Chambi of Vumba Kuu was nicknamed *Zumbura*. This, in the Kidigo⁵ dialect, means to find some thing or some place which is hidden, and is supposed to refer to the discovery of the Vumba

¹ As will be seen later on, the Sultans all had nicknames. These nicknames they gave themselves at this point in the ceremony.

² To the present day no native of Vumba, be he Mohammedan or heathen, may use an umbrella, except a crowned Diwan.

³ *Ante*, p. 279, note 6; also p. 282, note 7.

⁴ This custom is all the more remarkable as it is otherwise considered, here as elsewhere, a mark of disrespect to uncover.

⁵ The language of the Wadigo is called Kidigo; that of the Wasegeju, Kisegeju.

country. He is believed to have been enthroned *circa* 600 A.H. (1204 A.D.), and was buried, as were the six following chieftains, at Vumba Kuu.

Zumbura was succeeded by *Marikuona*. This word is believed to mean *Kuona Mali*, to find wealth.

The third Sultan was named *Kinena* (*mons veneris*). This is supposed to refer to his great strength.

Kinena was succeeded by *Hundekuu*. *Hunde*, in the Kidigo dialect, means some thing, the name of which is unknown, and *Kuu* is an adjective meaning great. The signification is, therefore, some great thing, the name of which is unknown.

After Hundekuu came *Mabua*. This word means stalks of Indian corn or millet, and the chieftain who gave himself this name is believed to have wished to convey the idea that, as during the harvest season, he would not only be content to gather in the corn but would even look after the stubble in the fields, so he would see to the wants of the least of his people.

His successor was *Niomvi*. This is the name of a small bird which lives in the rice fields.

The seventh Sultan of Vumba Kuu was *Mwenyi Chandi¹ bin Sheikh*. His father, Sheikh, who was a scion of a Mombasa family and hailed from the portion of that town known formerly by the name of Saalani, married a daughter of Mwana Chambi Niomvi. He did not change his name but was called Mwana Chambi Chandi. He lived to a great age and ruled well. After his death, the Sultans of Vumba were styled Mwana Chambi Chandi instead of Mwana Chambi, as heretofore.

Neither the name nor the real nickname of the next Sultan have been handed down to posterity. He is now known as *Mwana Chambi Chandi Mwenda na Wagalla*, i.e., the chieftain who went to the Galla. At this time the Galla, a warlike tribe from north of the Tana river, are said to have overrun the whole country, and one day whilst the Sultan of Vumba Kuu was on his way to Gonja, a small town on the Umba river not far distant, he encountered a band of these savages. The Mwana Chambi Chandi himself and all his followers were slain.²

After a longer interregnum than usual, a successor was eventually chosen in the person of *Mwana Chambi Chandi Ivor*. This is not believed to have been the Sultan's real nickname, but is probably a name given him by a tribe of people called the Wakilio, who, having been driven from their own lands, were granted permission by the chieftain of Vumba to settle in his territory. In the dialect of these people, who, as has been already stated, are now known by the name of

¹ Chandi, in Kishwahili, is the old form for Mjumbe, an ambassador or messenger.

² In 1589 Mombasa was attacked by some 15,000 natives, called by the Portuguese historian Fr. Joás dos Santos *Zimbas*, and by P. Pierre du Jarrie *Imbiec*. These people came from south of the Zambesi river and on their march north devastated the town of Kilwa massacring 3,000 of the inhabitants (Strandes, p. 153). It is probable that the Vumba chieftain was killed by these savages and not by the Galla.

Wasegeju,¹ *Ivor* signifies an ivory ring which is worn round the right arm above the elbow.

For many years past there had been great friction between the people of Vumba Kuu and the inhabitants of the towns Mbayayi,² Muso,² Kirui,² Mkumbi,² Manjauli,³ Mwiuni,⁴ Mdragoni⁵ and Kifundi,⁶ who, descended as they were from the early Shirazi or Wadaburi settlers from Persia, refused to acknowledge the Sultans of Vumba Kuu as their over-lords.

Mwana Chambi Chandi Ivor, therefore, eagerly collected together the Wakilio and turned them into soldiers. By their help and by the assistance of the friendly Wadigo, he managed to vanquish the inhabitants of the eight towns mentioned above. As a sign of their defeat, these people were forbidden, for ever, to wear either sandals or turbans, to use umbrellas, to allow their women to veil their faces, to have solid wooden doors to their houses or to possess any other drum than that known as the "tūt'u," which is so small that it can only be beaten by one hand. The Wakifundi, moreover, owing to their prolonged and stubborn resistance, were ordered to send some of their number, on the death of a Sultan of Vumba, to stand at the doors of the deceased's house.⁷

The majority of the conquered people, however, unwilling to accept peace on such degrading terms, left the towns of their birth and migrated elsewhere, some few to Jomvu, near Mombasa, whilst others went to Mtangata and Saadani and to other towns in what is now German East Africa. Those who remained had to comply with the terms of the peace, and these rules are observed by their descendants to the present day.

There are two large drums at Vanga which are believed to have been made at this time in commemoration of the victory over the eight towns. They are very massive and are grotesquely carved.

In 1630 A.D., about the time when Mwana Chambi Chandi Ivor sat on the throne of Vumba, the Portuguese at Mombasa were all massacred at the instigation of the Sultan of that town, named Yusuf (otherwise called Don Jeronymo Chingoulia), who, after being educated at Goa, had been converted to the Christian faith in 1627. Don Jeronymo seized the fort and successfully resisted

¹ *Ante*, p. 276, note 12.

² *Ante*, p. 279, note 4.

³ Manjauli is now called Manza. *Vide* p. 279, note 4.

⁴ Mwiuni is now called Alene. *Vide* p. 279, note 5.

⁵ Mdragoni was built near the spot where the Government station Shimoni now stands, on the mainland opposite Wasin town, and the ruins of a mosque are to be seen to the present day. The Wasegeju, who have a settlement hard by, have turned the site of the old town into a burial-ground.

⁶ Kifundi is now called Shirazi, and is situated a short distance up the Vikuarani stream, a rivulet entering Funzi Bay. In point of size it must have rivalled Vumba Kuu itself, and the ruins of stone mosques, wells, houses, walls and graves are still to be seen in a state of good preservation. The war between the Wavumba, *i.e.*, the people of Vumba, and the Wakifundi is said to have lasted seven years.

⁷ *Ante*, p. 280, note 3.

an attack on the part of the Portuguese under the command of Don Francisco de Moura, who, with a large fleet, anchored off Mombasa on the 10th of January, 1632. Before commencing operations, the Portuguese General, we are informed in "*Relação da perda e restauração de Mombaça do que lá aconteceu*," wrote to the "*King of Uumba, Mana Chamby Chande*, a neighbour of Mombasa and a great enemy of the rebel," asking for aid. The help did not arrive, and Don Jeronymo, having captured two of the Portuguese vessels, dismantled the fort, burnt the city and escaped to Arabia.¹

Mwana Chambi Chandi Ivor was the last of the Sultans to be buried at Vumba Kuu. An enormous gravestone was erected over the spot where his remains were interred, and each succeeding holder of the office has been enthroned on this stone. Unfortunately, as has been already stated, this grave, together with others, was pulled to pieces some three years ago, and the place is now only marked by a few small heaps of hewn blocks.²

On the death of Mwana Chambi Chandi Ivor, Mwenyi Kae³ bin Mwenyi Musa ba-Amiri was elected sultan. He chose for himself the nickname of *Kitwa Kimoja*, i.e., one head. It is uncertain what meaning this is supposed to convey, and the following explanations have been given me for the name:—1. That the sultan intended listening to and deciding all disputes himself; 2. That he was an only son; and 3. That he prophesied that he would be the last of the chieftains of Vumba Kuu.

Shortly after his election, Mwana Chambi Chandi Kitwa Kimoja had the misfortune to lose one of his sons, a boy named Mwenyi Pembe bin Sultan Mwenyi Kae. The child had gone to Wasin island with some fishermen and was playing on the beach when a Portuguese ship hove in sight. A boat was sent on shore, and the boy fearlessly approached the white men. On the sailors offering to take him on board, he went with them and was never seen again.

During the reign of this chieftain the whole country was overrun by a tribe called the Wadoe, cannibals, who hailed from near Dar-es-Salaam, the capital of German East Africa. On one occasion, they went as far as Mombasa, killing everybody who crossed their path and carrying off the flocks and herds. Amongst others who suffered from the raid of these savages were the relations and descendants of the late Mwenyi Chandi bin Sheikh, the first Mwana Chambi Chandi of Vumba. On their way home, the Wadoe stopped at Vumba Kuu but did no harm to the inhabitants and, having remained there a few days, they returned with their spoils to their own country.

A short while afterwards a report reached Mwana Chambi Chandi Kitwa

¹ Bibliotheca Nacional de Lisboa. Codice Manuscripto, No. 7640. An anonymous and undated work written about the middle of the seventeenth century. For further particulars concerning Don Jeronymo, *vide* Strandes, p. 209.

² *Ibid.*, p. 279, note 8.

³ Kae is an abbreviation for Abubakari. This Sultan's real name was Mwenyi Abubakari bin Mwenyi Musa ba-Amiri.

Kimoja that the relations and descendants of the late Mwenyi Chandi bin Sheikh, on hearing that the Wadoe had stopped at his town, had presumed that he and they were allies, and had decided to avenge themselves on the inhabitants of Vumba. Fearing an attack, the people left their homes and settled at Jimbo and at other fishing villages in the neighbourhood. Here they remained for some years, their houses, in the meantime, going to ruin.

Kitwa Kimoja died at Kigomeni and was buried at Bandani, a small wood near Vanga. With him died the last of the Mwana Chambi Chandi and the last of the chieftains of Vumba Kuu.

The next person selected to fill the honourable post of Sultan of Vumba was one Seyyid¹ Abubakari bin Sheikh el-Masela-ba-Alaui, a Shereef,² whose mother, Mwana Mkasi binti Mwenyi Musa ba-Amiri, was a sister of the late Mwana Chambi Chandi Kitwa Kimoja.³

Seyyid Abubakari chose for himself the nickname of *Ruga*, which, in the Kisegeju dialect, means the strength of a bull. He dropped the title of Mwana Chambi Chandi and assumed that of Diwan.

As the people of Vumba Kuu still feared an attack from Mombasa, many of them went, with Diwan Ruga at their head, to settle on Wasin island. Here they laid the foundations to a large city, which, a generation later, rivalled in extent and importance the former seat of the Sultans, Vumba Kuu.

The island of Wasin is some three miles in length, and, on the west side, about one mile in breadth. It is separated from the mainland by a channel which is three-quarters of a mile wide, and which forms one of the best harbours on the coast.

The origin of the word *Wasin* is lost in oblivion. The port was doubtless

¹ All descendants of the prophet, unless promoted through some act of their own or of an ancestor to the rank of "Sheikh," are addressed by the title Seyyid (Lord) or Sherifu (Shereef). These titles appear, in some instances, to form a part of a Shereef's name.

² Sultan Abubakari bin Sheikh's pedigree, as copied by his son, Omari, from a document brought from Mecca by one of his ancestors into Abubakari bin el-Fakihi Mwalimu Saleh's book is as follows:—"Sultan Seyyid Abubakari, ibn Seyyid Sheikh, ibn Seyyid Abubakari, ibn Seyyid Omari, ibn Seyyid Abubakari Masela-el-ba-Alui (the first of this family to come to East Africa), ibn Seyyid Ahmed, ibn Seyyid Sheikh, ibn Seyyid Abubakari, ibn Seyyid Ali, ibn Seyyid Ahmed, ibn Seyyid Abdullah, ibn Seyyid Mohamed, ibn Seyyid Alui, ibn Seyyid Abdullah, ibn Sheikh Ali, ibn Sheikh Abdullah ba-Alui, ibn Sheikh Alui, ibn Seyyid Fakihi-Mohamed, ibn Seyyid Ali-Mkadam-Turuba, ibn Sheikh Mohamed-Sahebu-Marabati, ibn Sheikh Ali-Khali-el-Kasim, ibn Seyyid Alui, ibn Seyyid Mohammed, ibn Seyyid Alui (from whom the family received its surname), ibn Seyyid Abdullah, ibn Seyyid Ahmed, ibn Seyyid Isa, ibn Seyyid Mohamed, ibn Seyyid Ali el-Arthi, ibn Seyyid Jafer-Sadik, ibn Seyyid Mohamed el-Bakir, ibn Seyyid Zeina-el-Abidnia-Ali, ibn Seyyid Husein, ibn Ali (who married the Prophet's daughter Fatuma), ibn Abetwahib." The Prophet's pedigree is carried back some fifty other generations and eventually reaches Adam. As it is given at length in the Koran, it is unnecessary for me to record it here. The original pedigree which came from Arabia was burnt, I am informed, at Ormuz, in 1895.

³ Mwenyi Musa ba-Amiri had one other daughter, Mwandazi, who was married to Mwenyi Hija bin Mwenyi Husein, a grandson of Mwenyi Chambi bin Sheikh, the first Mwana Chambi Chandi of Vumba.

known to the first Asiatic mariners who navigated these waters, and, according to Drs. Tomaschek and Bitter,¹ a Christian priest, a descendant of one of the Syrian missionaries who settled on Socotra Island shortly after the death of Our Lord, journeyed about the year 550 A.D. to *Auxine* (Wasin), from whence he travelled to Taprobane (Ceylon). The name Wasin also appears in several ancient maps, notably in one published in 1554.

The Portuguese had no settlements there, but their ships occasionally paraded the coasts and sometimes called at the various towns. There are, at the present day, three towns on the island, Wasin proper, facing the mainland, Kunguni, a hamlet on the south side, built on the site of the fishing village of Mwana Chambi Chandi Kitwa Kimoja's time, and, on the eastern point, a settlement of Wakifundi.

The town of Wasin, although not so large as it was a century and a half ago, is still an important centre and has long been the chief market on the East Coast of Africa for *boriti* wood, obtained from the mangrove trees which abound in the neighbouring creeks. It contains several stone houses and three mosques; two of the latter were built some seventy years ago by Ahmed (nicknamed Mkulu) bin Mwenyi Mkuu el-Hasraji-el-ba-Urii, whilst the third was erected by Diwan Hasan (a son of Diwan Ruga), and was completed, as we are informed by an inscription carved by Sheikh bin Mwenyi Mui el-Hasraji-el-ba-Urii, on the birthday of Mwana Siti binti Diwan Hasan, the 23rd day of Auwal, 1162 A.H. (1749 A.D.). There are also the ruins of another mosque which was built by Kalaha, the agent at Wasin of Ahmed bin Mohamed, the Mazrui Governor of Mombasa from 1194 to 1229 A.H. (1780–1814 A.D.),² and of several other stone houses. One of the latter, which was formerly the property of Sheikh bin Mwenyi Husein (nicknamed Akida) ba-Amiri, is believed to have treasure buried beneath its floors.³

Fresh water is unobtainable on the island itself, although two wells were sunk in the soft coral rock by Diwans Hasan and Sheikh. All water required for drinking purposes has, in consequence, to be procured from the mainland immediately opposite Wasin town. This is done by means of water-tight boats, the rowers sitting in the water which is afterwards to be consumed.

There are numerous gravestones on the island, but, as none are dated, they are of little importance. Many of the memorial inscriptions, however, which are of some interest, have been irretrievably damaged by the chisels of vandalic china-hunters from our ships of war.⁴

Diwan Ruga, having established himself at Wasin, proceeded to amass great wealth, chiefly through trading with the interior for ivory and slaves. He thus

¹ *Die topographischen Copitel des indischen Seespiegels Mohit*, p. 29 (Vienna, 1897).

² *The Story of Mombasa*.

³ Burton in his *Zanzibar*, vol. ii, page 110, whilst describing a visit to this island, says: "By way of revenge, I dropped a hint about buried gold which has doubtless been the cause of aching arms and hearts to the churls of Wasin." Is this the origin of the tradition?

⁴ It was formerly customary here, as elsewhere on the East Coast of Africa, to ornament the graves by fixing china dishes and plates into the stones.

became one of the best known Sultans on the coast, and after Mombasa had been re-occupied by the Portuguese in 1728 A.D., Conde da Ericeira D. Luiz (afterwards the first Marquez de Loureçal), who was Viceroy of India from 1717 to 1720, mentions in his *Noticias da India desde o fim do Governo de Vice Rey Vasco Fernandez Cesar até o fim do anno de 1738 an que governa o Vice Rey Conde de Landemil*,¹ that the King of Vumba submitted together with other princes to the Mombasa Government. He writes as follows:—

"Dentro de poucos dias forão sogestar-se ao Governo dā Mombaça, Moinha Macombe, Rei de Oacone,² Meameruruba, Rei de Mitangota,³ *Manachambe*, Rei de Vumba, Moinha Chambe,⁴ Rei de Tanga, Bensultan Manyá, Rei da Ilha de Pomba,⁵ e por Anfalumen Assane,⁶ Rei de Zanzibar, foi dar obediencia em seu nome seu filho Muinha Mocu."

In another contemporary report the King of Vumba is called *Mana Chame*, and it is stated that he together with the other chieftains mentioned above went to Mombasa to pay homage to the Portuguese.

Diwan Ruga was thrice married and had issue by his wives fifteen children. He also had by concubines, twenty-five other children, twenty-three of whom are believed to have died in infancy or without issue. His first wife was his cousin, Mwana Musa binti Mwenyi Kae ba-Amiri (a daughter of Mwana Chambi Chandi Kitwa Kimoja). By her he had issue two sons, Seyyid Ibadi (nicknamed Miongo), the head of what was, at a later date, called "the Kigomeni family," and Sheikh, who, according to the inscription on his grave, was buried at Kigomeni in 1202 A.H. (1787 A.D.).

Diwan Ruga's second wife, who lived at Wasin, was Mwana Jumbe binti Mwenyi Umanzi bin Sheikh el-Hasraji-el-ba-Urii of Ozi.⁷ She bore him twelve children, of whom her eldest son, Omari, died without issue on the sixth day of the seventh month, 1148 A.H. (1735 A.D.).⁸ The most important of her other sons were Hasan, afterwards Diwan, the head of what was called, at a later date, "the Wasin family"; Mwenyi Sagafu, who was buried at Kigomeni in 1201 A.H. (1786 A.D.);⁹ Idarus, who was considered a wizard, and at whose grave at Wasin, the Wadigo, in dry seasons, offer up prayers for rain; Alau, the ancestor of the third and fourth Diwans of Wasin; and Kasim, who was the first person to settle on the plot of ground now called Vanga. The latter was greatly liked by the Mazaran, whom he accompanied when the governor of Mombasa, Ali bin Athman el-Mazrui, attacked the native chieftain of Zanzibar. During this expedition

¹ Bibliotheca Nacional de Lisboa. Codex Manuscripto, No. 465.

² Is this Mdragoni? (*Ante*, p. 282, note 5.) According to tradition, all the inhabitants after the fall of this town in Mwana Chambi Chandi Ivor's reign went elsewhere, and it was allowed to fall into ruins.

³ Mtangata, a town some twenty miles south of Tanga, German East Africa.

⁴ Mwenyi Chambi. *Ante*, p. 277, note 4.

⁵ Pomba.

⁶ Mfalme Hasan. *Ante*, p. 277, note 4.

⁷ Ozi is a town not far from Lamu.

⁸ Abubakari bin el-Fakihi Mwalimu Saleh's book.

⁹ Memorial inscription.

Ali bin Athman himself was killed by his nephew Khalaf bin Khatibu bin Athman in 1167 A.H. (1754 A.D.) and was buried at Zanzibar.¹

Diwan Ruga's most renowned daughter was Mwana Siti (nicknamed Wa Mwana Chambi). She was married to Abubakari (nicknamed Bajios) bin Twahiri el-Jadid and thus became the ancestress of the Diwans of Vanga. This Mwana Siti binti Diwan Ruga was appointed, according to an old Vumba custom, judge in all matters in which the fair sex was concerned. These lady judges have been regularly elected ever since, and, on the death of one, another is chosen.

Diwan Ruga married thirdly a lady of Pemba, by whom he had issue one son, Sherifu Ibadi (nicknamed Mwenyi Pati).

Diwan Ruga died on the fourth day of the first month, 1155 A.H. (1742 A.D.),² and was buried at Wasin.

His second and eldest surviving son by Mwana Jumbe binti Mwenyi Umanzi el-ba-Urii, named Hasan, was aged about forty when Diwan Ruga died. The people of Wasin unanimously elected Shereef Hasan to fill the vacancy caused by his father's death, and he was enthroned at Vumba Kuu in 1157 A.H. (1744 A.D.).³ Owing to his name meaning blessed, he did not change it; he is thus known as Diwan Hasan.

The inhabitants of Kigomeni, at the instigation of the head of the Ba-Amiri, Mwenyi Mkuu bin Sultan Mwenyi Kae (the eldest son of Mwana Chambi Chandi Kitwa Kimoja) refused to acknowledge Diwan Hasan and wished to appoint, in his stead, his half-brother Seyyid Ibadi (nicknamed Miongo) bin Diwan Ruga. The latter certainly had a better claim, if it was a question of hereditary rights, owing to his mother being a daughter of Mwana Chambi Chandi Kitwa Kimajo, but he declined becoming Hasan's rival. Mwenyi Mkuu and his followers at Kigomeni, however, still rejected the choice of the people of Wasin, and now selected a member of another branch of the Ba-Alaui family, Sherifu Ali bin Abubakari, as their representative. The table⁴ on p. 288 will show his relationship to Diwan Hasan.

Sherifu Ali bin Abubakari el-ba Alaui was duly enthroned at Vumba Kuu and took the name of *Maere*, which means clear weather after the storm. Thus, there was one Diwan at Wasin and another at Kigomeni.

The latter, after holding office for ten years, died on the 24th day of Rajiabo, 1168 A.H. (1755 A.D.).⁵ Both he and his patron, Mwenyi Mkuu bin Sultan Mwenyi Kae were very poor, and no money was forthcoming to pay for the ordinary funeral feast. Mwenyi Mkuu at last decided to compromise with Diwan Hasan and promised, if the latter would pay for the feast to be held in honour of

¹ *The Story of Mombasa.*

² Abubakari bin el-Fakihi Mwalimu Saleh's book.

³ *Ibid.*

⁴ This pedigree and the dates are taken from Abubakari bin el-Fakihi Mwalimu Saleh's book.

⁵ Abubakari bin el-Fakihi Mwalimu Saleh's book.

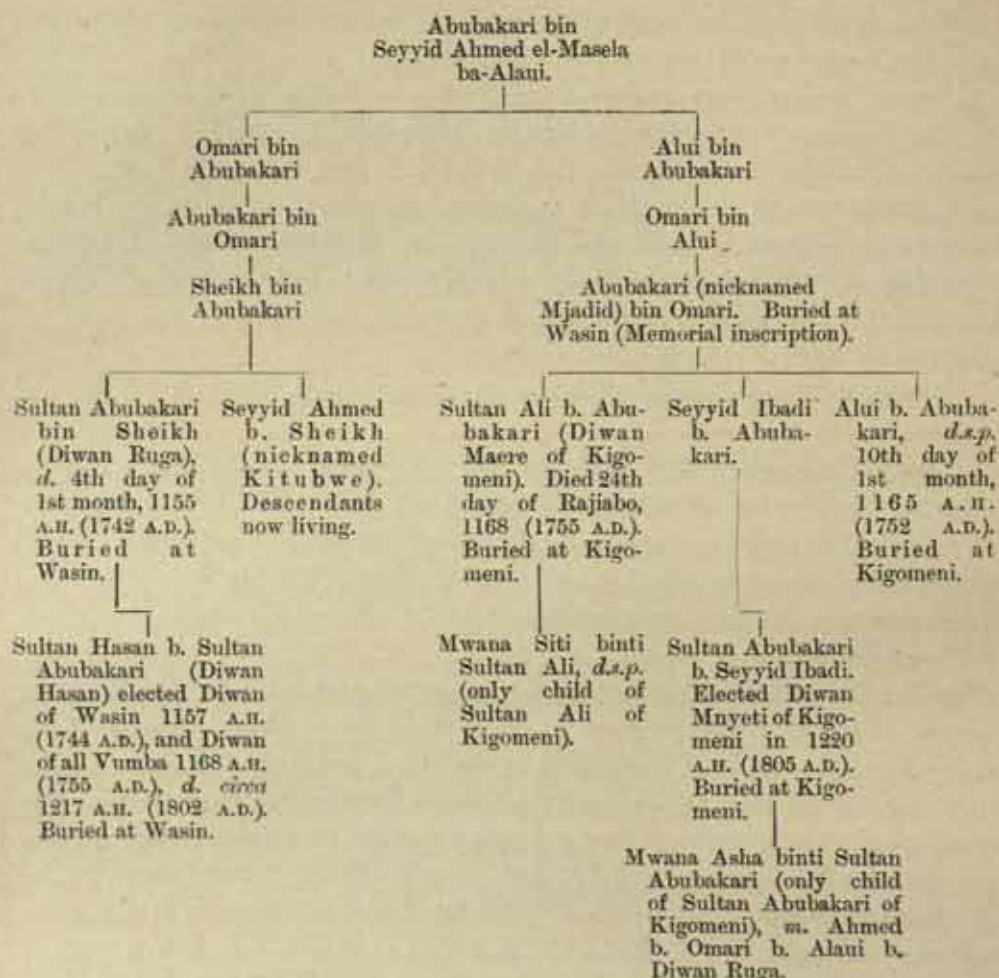


TABLE SHOWING THE RELATIONSHIP BETWEEN DIWAN HASAN AND SHERIFU BIN
ABUBAKARI EL-BA-ALAU.

the death of his late rival, that he (Diwan Hasan) would alone be acknowledged as Sultan from Kwale to Likoni. Diwan Hasan accepted the offer and paid for and was present at Diwan Maere's funeral feast, after which he returned to Wasin and reigned as Sultan of Vumba until his death in *circa* 1217 A.H. (1802 A.D.).

Diwan Hasan paid several visits to his mother's relatives at Ozi, and on one occasion was presented with an ivory horn (*siwa*). This horn, which weighs about sixty pounds, is still in the possession of the people of Vanga.

During the latter years of his life, Diwan Hasan was, owing to his great age, quite incapable of performing any of the duties of his office, and his eldest and only surviving son, Abubakari bin Sultan Hasan, who was born on the twelfth day of the third month, 1148 A.H. (1735 A.D.),¹ acted in his stead.

¹ Abubakari bin el-Fakihi Mwalimu Saleh's book.

Diwan Hasan married four times. His best known sons are Seyyid Ahmed, who was born on the 27th day of the 6th month, 1149 A.H. (1736 A.D.),¹ and Sherifu Ali, who was buried at Kigomeni in 1200 A.H. (1785 A.D.).²

On the death of Diwan Hasan, his son Abubakari was unanimously chosen as his successor and was duly invested with the *vunda*.³ Before he could be enthroned at Vumba Kuu, however, Sherifu Abubakari was taken suddenly ill and died.

A Shereef, named Sheikh Hasan bin Salim min⁴-Ali-Sheikh-Abubakari-bin Salim-el-Mansabi,⁵ who, by his mother, a daughter of Diwan Hasan, was a great-grandson of Diwan Ruga, and who had married a daughter of the late Seyyid Abubakari bin Diwan Hasan, was accused by his enemies of having killed his father-in-law by witchcraft in order to be chosen Diwan himself. Be that as it may, Sheikh Hasan bin Salim obtained a portion of the wealth left by Diwan Ruga, to the exclusion of the lawful heirs, was elected Diwan and was eventually enthroned at Vumba Kuu. He chose for himself the name of *Sheikh* (pronounced *Shehe*) in memory of his ancestor Sheikh Abubakari bin Salim el-Mansabi, who, in his time, was a great and learned man.

Some of the people of Kigomeni again opposed the choice of their relations of Wasin, and the more wealthy of them collected a sum of money and appointed the nephew of the late Diwan Maere, by name Abubakari bin Seyyid Ibadi el-ba-Alaui, who had been earning a precarious livelihood in Zanzibar, as their Sultan. Great friction was thus once more caused between the inhabitants of these two towns, and all the supporters of Diwan Sheikh living at Kigomeni were obliged to quit their homes and settle on the island of Wasin.

This, too, formed a fresh pretext for the Wadigo to enter on a civil war—a no very uncommon matter with that tribe—and their chief, named Kubo Mwakikonga of the Mohindzano or Kinangala clan, enraged at the people of Kigomeni asking his underling, Mwana Moki Mwabubu of Kilulu⁶ for an escort to take them to Vumba

¹ Abubakari bin el-Fakihi Mwalimu Saleh's book.

² Memorial inscription.

³ *Ante*, p. 279, note 2.

⁴ *Min* is equivalent to "of the family of."

⁵ Sheikh Hasan's pedigree, according to Abubakari bin el-Fakihi Mwalimu Saleh's book is as follows:—"Sultan Hasan, ibn Sheikh Salim, ibn Sheikh Ahmed, ibn Sheikh Nasir, ibn Sheikh Ahmed, ibn Sheikh Salim, ibn Sheikh Ahmed, ibn Sheikh Abubakari, ibn Sheikh Salim, ibn Sheikh Abubakari, ibn Sheikh Ahmed, ibn Ali, ibn Sheikh Abubakari, ibn Salim." Sheikh Abubakari ibn Salim's pedigree, I am informed by the Sheikh-ul-Islam, or chief Cadi for the East Africa Protectorate, is as follows:—"Sheikh Abubakari ibn Salim, ibn Abdurrahman (Segafu), ibn Mahomed (Maul-Abduliwa), ibn Ali, ibn Alui, ibn Mahomed, ibn el-Fakihi Makadam, ibn Ali, ibn Mahomed Sahebu-Marabati, ibn Ali, ibn Alui, ibn Mahomed, ibn Alui, ibn Abdullah, ibn Ahmed, ibn Isa, ibn Mahomed, ibn Ali, ibn Jafer, ibn Mahomed, ibn Husein, ibn Ali (who married the Prophet's daughter Fatuma)." It will be noticed that, with the exception of Zeina-el-Abidnia-Ali, this pedigree coincides for some generations with that of the Ba-Alaui family.

⁶ Kilulu is a hill, 900 feet high, on the sea coast, ten miles south of Jasin. Mwana Moki had stones carried to the top of this hill and there built himself a house. After his death he

Kuu, attacked the new Diwan's party while on its way to the enthronement, killing several of its members and forcing the Diwan himself to fly for his life.

Some days later, however, chiefly through the intercession of his rival, Diwan Sheikh, Seyyid Abubakari bin Seyyid Ibadi el-ba-Alaui was enthroned at Vumba Kuu and chose for himself the name of *Mnyeti*, meaning Patience.

On the 23rd of the seventh month, 1236 A.H. (1821 A.D.),¹ war was declared between Seyyid Said bin Sultan, the fourth Albusaidi Imam of Muscat, and the Mazrui governor of Mombasa, Abdullah bin Ahmed, who, on his accession in 1229 A.H. (1814 A.D.),² had despatched to his lord, instead of the customary presents, a mail shirt, a flask of powder and a wooden spoon. After Pate had fallen before the Arab invaders, the island of Pemba was threatened. On hearing of this, Diwan Sheikh thought it would be wiser to leave Wasin until hostilities should be at an end, so he went with all his adherents to the mainland. Some of the people, including the Diwan himself, settled at Vanga—then only a small fishing village—whilst others went to live at the various towns along the coast.

Shortly after the evacuation of Wasin, one of Seyyid Said bin Sultan's generals, Amiri Ahmed bin Mahomed, called at the island on his way to Pemba, and, presuming that the deserted town which he found there belonged to the enemy, he destroyed all the houses and other buildings, leaving untouched only the mosque built by Diwan Hasan.

Diwan Sheikh did not long survive his change of residence. He died in the first year after Suliman bin Ali had been chosen Governor of Mombasa³ (1239 A.H. or 1824 A.D.), and was buried at Bandani, near the grave of Mwana Chambi Chandi Kitwa Kimoja.

Diwan Mnyeti had predeceased Diwan Sheikh and had been buried with his uncle, the late Diwan Maere at Kigomeni.

Owing to the English having placed Mombasa under their protection,⁴ there was now no longer any fear of Seyyid Said attacking Wasin, and the people, with the exception of those who had gone to Vanga, returned to their homes and rebuilt their houses. Those who had followed the late Diwan to Vanga remained at that town.

Some dispute arose between the latter and the people of Wasin as to where the feast to be given in honour of Diwan Sheikh's death should be held, each party advocating its own town. The former had the better of the argument, and the feast was consequently prepared at Vanga.

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was buried with five of his brothers on the summit, and his grave can be seen to the present day. Mwani Moki belonged to the Kombo family of the Dziribe clan.

¹ *The Story of Mombasa.*

² *Ibid.*

³ Abubakari bin el-Fakihi Mwalimu Saleh's book. According to *The Story of Mombasa*, Suliman bin Ali el-Mazrui was chosen governor of that town in 1238 A.H. (1823 A.D.).

⁴ Sir Arthur Hardinge in his *Report on the condition and progress of the East Africa Protectorate from its commencement to the 20th July, 1897*, writes, "Suliman bin Ali placed himself under the protection of Captain Owen of H.M.S. 'Barraclouta,' in 1823. The British Government, however, repudiated the Protectorate, which was withdrawn two years later."

According to an old custom, it is necessary for all the relations of a deceased Sultan of Vumba who intend taking part in the funeral feast given in his honour to be present when a certain ox is slaughtered, and if the ox is slaughtered whilst any one is absent, it is considered as an insult to the absentee. The ox, which is always the largest that can be procured, is first of all given a name. On the present occasion it was called "Mjaka wa Chandi."

On the day appointed, one Seyyid Ahmed bin Alau bin Sultan Abubakari (a grandson of Diwan Ruga) purposely absented himself from the revels, and the ox was slaughtered before he arrived. When he appeared upon the scene, he called upon all present to witness the insult which had been offered him and returned to Wasin without taking part in the feast. He was followed by most of the Ba-Alau and Ba-Amiri and was shortly afterwards proclaimed Diwan. The Vanga people, however, refused to acknowledge him and wished to appoint Sheikh Nasir bin Sultan Hasan (a son of the late Diwan Sheikh) as his father's successor, but the latter, now an elderly man,¹ did not desire the honour and proposed a Shereef, named Seyyid Ahmed bin Abubakari (Dani) bin Abubakari (Bajios) bin Twahiri bin Ahmed bin Husein el-Jadid, the son of his father's half-sister, Mwana Alau binti Mfalme Bakiri of Zanzibar, and the great-grandson as well as the great-great-grandson of Diwan Ruga.²

As there was now an open breach between the inhabitants of Wasin and Vanga, and matters began to look serious, it was decided that the whole case should be referred to the Mazrui Governor of Mombasa, Suliman bin Ali.

At first, the judge favoured the suit of Seyyid Ahmed bin Alau, but seeing that the Vanga people absolutely refused to acknowledge him and that Sheikh Nasir bin Diwan Sheikh had inherited some of Diwan Ruga's great wealth together with the articles appertaining to the Diwan's office, he decided that both Seyyid Ahmed bin Alau and Seyyid Ahmed bin Abubakari should be elected Diwan. Thus, the houses el-ba-Alau and el-Jadid were represented respectively at Wasin and Vanga.

The former Diwan named himself *Kikambala* and the latter *Pinda*. The meaning of *Kikambala* in the Kidigo dialect is tether. Seyyid Ahmed bin Alau called himself thus in order to show that, as an ox could be fastened by a piece of cord, so would he be tied to his post by duty. The meaning of *Pinda* is to bend a bow preparatory to shooting an arrow. Seyyid Ahmed bin Abubakari's idea in giving himself this name was to make the people think that he was always ready to receive an enemy.

Both men were much respected, but, of the two, the Wasin Diwan had the greater influence over the Wasegeju and Wadigo, which latter tribe, under the warlike chief Kubo Mwakikonga, was now in the zenith of its power. Diwan

¹ According to Abubakari bin el-Fakihi Mwalimu Saleh's book, Sheikh Nasir was born on the 19th day of the 5th month, 1189 A.H. (1775 A.D.). He was therefore fifty years of age when the above recorded event happened.

² *Ibid.*

Pinda was considered a great wizard and medicine-man and was much favoured by the Mazaran, with whom he spent the half of each year.

As the Vanga Diwan had inherited the drums of Mwana Chambi Chandi Ivor (*vide* p. 282) and the ivory horn of Diwan Hasan (*vide* p. 288), the people of Wasin had three large drums and a long wooden horn made.

In 1241 A.H. (1826 A.D.) Salim bin Ahmed el-Mazrui deposed his cousin Suliman bin Ali,¹ and on the 23rd day of the 5th month, 1243 A.H. (1828 A.D.),² he was obliged to surrender the fort at Mombasa to the Muscat Prince, Seyyid Said bin Sultan. He was, however, permitted to remain as hereditary governor of the town and to retain one half of the revenues. When Seyyid Said had once obtained possession of the fort, which he placed under the charge of a Jemidar,³ named Shoho, he broke his pledge to the Mazaran and appointed Nasir bin Seliman bin Kasim Ismaili Governor of Mombasa. Incensed by this breach of faith, Salim bin Ahmed attempted unsuccessfully to poison his enemy's representative, who thereupon retired to the fort.

One of the Imam's generals, Alimas hadim⁴ Seyyid Said, was sent from Zanzibar to recover the town of Mombasa, which had been seized by the Mazaran, and to succour the inmates of the fort, who were in such straits for want of food that they were reduced to eating rats.⁵ On his way thither, Alimas stopped at Wasin and signed a treaty of peace with Diwan Kikambala. Noticing some cowry shells on the sea-shore which belonged to his enemy, Salim bin Ahmed, Alimas begged the Diwan to allow him to take them away with him to use against their owner instead of shot. Diwan Kikambala, possibly glad of an opportunity to avenge himself on the patrons of his rival, readily agreed, and three *gizlahs* (1080 lbs.) of the shells were put on board the Zanzibar boats before Alimas set sail for Mombasa.

On the conclusion of peace between the Mazaran and the Muscat Arabs in 1249 A.H. (1833 A.D.),⁶ the Diwan of Wasin was told that Salim bin Ahmed was angry with him for the part he had played in handing over the cowry shells to Alimas, and he was advised to go to Mombasa and wait on the Governor. He therefore went, accompanied by a large following of Arabs and, as a hint, attended by a small body-guard of Wadigo and Wasegeju.

Salim bin Ahmed, fearing to do anything to him openly, on account of his influence over the natives, received him well, and great festivities were given in his honour.

On the day before Diwan Kikambala intended returning to Wasin he was taken slightly ill, and Mahomed bin Ahmed, Salim's brother, gave him some medicine. Shortly after he had drunk the concoction, he became much worse and expired in a few hours. He was buried in the grave-yard, called "Kwa Masheikh," in the "Mji wa kale" portion of Mombasa.

¹ *The Story of Mombasa.*

² A *jemidar* is a native subaltern officer.

³ *The Story of Mombasa.*

⁴ *Ibid.*

⁵ The meaning of *hadim* is "the slave of."

⁶ *Ibid.*

Having ridded himself thus successfully of his enemy, Salim bin Ahmed thought it advisable to disperse the relations of the deceased. In consequence, he ordered them to return to their homes, to break down their houses and to go and live on the mainland. This they did, remaining at Vanga and at other coast towns till the final capture of Mombasa by Said bin Sultan, who treacherously seized Rashid bin Salim, a son and successor of Salim bin Ahmed, and sent him with twenty-four of his relations to starve in the dungeons of Bunder-Abbas,¹ when the Wasin people again took up their abode on the island.

In the meantime, Diwan Pinda had quarrelled with the Mazaran, owing to their brutal treatment of one of the Mwenyi Chambi of Tanga,² and had joined their enemy, Seyyid Said bin Sultan, at whose court he now spent the greater part of his time. He twice accompanied the Sultans of Zanzibar to Siu,³ being present at the defeat of Seyyid Said's forces by the chieftain Mataka, and later, at the bombardment and taking of that town by Seyyid Majid bin Said. Diwan Pinda also twice visited the chieftain of Usambara,⁴ by name Kimweri, at the latter's capital, Vuga. Although he rarely stopped at Vanga, the Diwan put that town in a state of defence by encircling it with a stone wall.⁵

In 1275 A.H. (1858 A.D.) the country was visited by cholera. According to the diary of one Abubakari bin Kasim bin Mwalimu Twahiri el-Jadid, no fewer than two hundred and sixty-two persons died of this disease at Wasin in thirty-seven days.

Vanga was attacked in 1276 A.H. (1859 A.D.) by a horde of Masai, a war-like and nomad tribe inhabiting the plains between Kilima Njaro and Victoria Nyanza. Although at first repelled, they returned in greater numbers than before and finally forced the inhabitants to take shelter at Kigomeni. The invaders did but little damage to the town and contented themselves with driving off the cattle.

Sultan Ahmed bin Abubakari el-Jadid, otherwise called Diwan Pinda, died at Vanga in 1280 A.H. (1863 A.D.) and was buried at Bandani.

On the return of the Wasin people to the island home of their ancestors in 1253 A.H. (1837 A.D.), they decided to elect a successor to Diwan Kikambala. The choice fell on Seyyid Ahmed bin Nasir bin Alaui bin Diwan Ruga, who, however, died before he could be enthroned. His brother, Seyyid Alaui bin Nasir bin Alaui

¹ This event took place, according to an inscription in the Friday Mosque of Hamis Mohamed Ali Rokhesh in Mombasa, on the 20th day of the 3rd month, 1253 A.H. (1837 A.D.).

² *Ante*, p. 277, note 4.

³ *Ante*, p. 277, note 2.

⁴ Usambara is the name given to the highlands at the back of Tanga, German East Africa. On the slopes there are now numerous coffee plantations. As a safeguard against attack, the natives build their villages in the middle of its densest woods, or on the summits of its highest hills.

⁵ This seems to be the unanimous statement of the inhabitants of Vanga, but Sir Arthur Hardinge in his *Report on the condition and progress of the East Africa Protectorate from its commencement to the 20th July, 1897*, writes, "Vanga (in 1894) was surrounded by a stone wall said to date from the Portuguese times, portions of which are still in existence."

bin Diwan Ruga, was then chosen in his stead. The latter, I am told, was a fine, handsome man with a long flowing beard; but, shortly after his election, he had the misfortune to become totally blind. The superstitious natives attributed both the death of Seyyid Ahmed bin Nasir and the blinding of his brother to the sorcery of Diwan Pinda; and this idea took such a firm hold on the minds of the people that it was decided to await the Vanga chieftain's death before Seyyid Alau bin Nasir should be enthroned. In the first month of 1281 A.H. (1864 A.D.) Seyyid Twahiri bin Abubakari (Dani) el-Jadid, who had been chosen by the people of Vanga to succeed his brother, the late Diwan Pinda, was enthroned together with Seyyid Alau bin Nasir el-ba-Alau at Vumba Kuu. The Diwan of Wasin chose the name of *Ukungu*, meaning dawn, and the Diwan of Vanga that of *Kilimia*,¹ meaning the Pleiads. The former thus likened the long interregnum which had followed Diwan Kikambala's death to a tropical night, whilst the latter wished to show that, as the Pleiads are invisible for a short period during the year, so the people of Vanga had not been long without their chief.

The only work of note performed by Diwan Kilimia was to improve the wall built by his brother round the town of Vanga.

During the month of Ramathan, 1286 A.H. (December, 1869), a terrible wave of cholera again passed over the land. Four hundred and thirty persons died in fourteen days at Vanga and Wasin, amongst them the Diwan of Vanga himself, Sheikh Kasim bin Abdullah el-Menthiri (Diwan Kikambala's Cadi) and eighty-two Arabs, of whom ten were virgins.² The Diwan, who died on the tenth of the month, was buried at Bandani.

In 1288 A.H. (1871 A.D.) Seyyid Ahmed bin Sultan Twahiri el-Jadid, a son of Diwan Kilimia, was selected by the people of Vanga to succeed his father. He chose for himself the name of *Marithia* (a corruption of *Marithawa*, which means plenty), as a prediction that, so long as he lived, there would be no famine in the land. He is, however, better known by his former nickname *Shukue*, which is a corruption of *Chukua*, and means take.

Diwan Ukungu of Wasin died in 1295 A.H. (1878 A.D.) and was buried with great pomp in the grave of his ancestor Diwan Ruga. In 1300 A.H. (1883 A.D.) a successor was chosen in the person of Seyyid Nasir bin Alau bin Diwan Kikambala, who, however, died on the 22nd of the 4th month, 1302 A.H. (February, 1885 A.D.),³ before he had been enthroned at Vumba Kuu. No other successor to Diwan Ukungu has since been chosen, and the drums, silver chain, wooden horn and

¹ *Kilimia* means literally "that by which to cultivate." The Pleiads are not seen for two or three weeks in May or June, and their reappearance marks the commencement of the Indian corn and millet harvest. The following is a common native proverb:—"Kilimia kiki-zama kwa jua huzuka kwa mvua, kikizama kwa mvua huzuka kwa jua," or "When the Pleiads set in sun, i.e., in sunny weather, they rise in rain; when they set in rain, they rise in sun." (Taylor: *African Aphorisms*.)

² Numbers, date and particulars taken from the diary of Abubakari bin Kasim bin Mwalimu Twahiri el-Jadid.

³ Entry in Nasir bin Alau's Koran made by his son Alau bin Nasir.

umbrella, etc., pertaining to the office of Diwan of Wasin are now in the possession of Seyyid Alaui bin Nasir bin Alaui bin Diwan Kikambala bin Alaui bin Diwan Ruga, the Government Arabic clerk at Shimoni.

After the death of Seyyid Nasir bin Alaui bin Diwan Kikambala, the members of the Ba-Alaui family at Wasin were continually quarrelling as to who had the best right to be elected Diwan, and, in the years 1310 and 1311 A.H. (1892 and 1893 A.D.), assaults and disturbances of all kinds were of frequent occurrence. The I.B.E.A. Company's District Superintendent at Shimoni, tired at length of warning, ordered on one occasion, seven Shereefs to receive twenty-five lashes each. This sentence had the desired effect so far as the Company's officials were concerned, but it is probable that no Diwan of Wasin will ever again be chosen, so heartily do the rivals now hate one another.

Troublous times followed the election of Diwan Mirithia. Shortly after his succession, Sheikh Mbaruk bin Rashid el-Khelani-el Mazrui of Gasi sent him a haughty message demanding a free woman of Vanga as wife. The people refused and asked for and obtained aid from Sultan Barghash bin Said of Zanzibar. Sheikh Mbaruk attacked Vanga but was repelled with loss.

In 1302 and 1303 A.H. (1884 and 1885 A.D.) the country was stricken by famine, contrary to the Diwan's prediction, and thousands of the natives died.

In 1304 A.H. (1886 A.D.) Sheikh Mbaruk bin Rashid rebelled for a second time against the authority of the Sultan of Zanzibar, and remembering his defeat some years before at the hands of the people of Vanga, he surprised that town and burnt and sacked it. The Diwan and most of the inhabitants fled to Manza, in German East Africa, where they remained until Sheikh Mbaruk was eventually compelled by General Mathews to make his submission at Zanzibar to Seyyid Barghash.

On July 24th, 1895, Sheikh Mbaruk again attacked and burnt Vanga.¹ One of his generals, Ali bin Abdullah el-Mazrui, at the same time seized as hostages the persons of the Diwan and his Cadi (the present Liwali of Vanga) and sent them, under a small escort, to the Mazrui fortress at Mwele.² On the road they stopped for the night at Miongoni, on the Uмба river. The Mdingo elder of this village, one Mvuno of the Mwiombo clan, remained true to the oath taken by his chief at the Diwan's enthronement. He beat his war-drums, collected a large number of his tribesmen and rescued the prisoners, who escaped to Kwale in German territory, where they remained till hostilities were at an end.

Diwan Marithia, who during the last few years of his life was recognised as Diwan of all Vumba, died childless on the 6th day of the 6th month, 1315 A.H.

¹ *Vide Blue Book, Africa, No. 6 (1896), p. 12.*

² Mwele is a hill, lying at the southern end of the Shimba group, twenty miles to the west of Gasi. From its summit a wonderful view can be obtained, the snow-covered heights of Kilima Njaro, surmounting a long expanse of plain studded with isolated peaks, being visible on the one side, whilst, from the opposite slope, can be seen the whole coast line, the Indian Ocean, and in the distance the Island of Pemba.

(August 8th, 1897), and was buried at Baudani. In accordance with a proclamation issued by the Sultan of Zanzibar, Seyyid Ali bin Said, on the 1st of August, 1890, the late Diwan's slaves—ninety-six in number—were all set at liberty.

Since Diwan Marithia's decease no one has, as yet, been chosen to succeed him. There are, however, two claimants, viz.:—his brother, Sherifu Abubakari bin Diwan Kilimia el-Jadid and Sherifu Nasir bin Hasan bin Hasan bin Abubakari bin Seyyid Ahmed bin Diwan Ruga el-ba-Alaui, whose mother was Fatuma binti Diwan Kilimia, but neither of these persons have sufficient means wherewith to pay for the various feasts necessary before the election can take place. A rumour is being circulated that a woman, Mwana Shasha binti Diwan Kilimia, a wife of the Cadi of Wasin, Sheikh Rashid bin Kasim el-Menthiri, is also anxious to become Diwan; notwithstanding this lady's high position and great wealth, however, she has received but feeble support from the electors. Nevertheless, it is to be hoped that the ancient title will not be allowed to fall into complete abeyance, but that some duly qualified candidate may yet be chosen to make once more the time-honoured journey to the ruined city in the wood and thence return a crowned Diwan of Vumba.

NOTES ON THE PEDIGREE OF THE DIWANS OF VUMBA.

Plate XXX.

1. Author of book in which the records of Vumba Ndogo were kept. This book was finished on the 7th of the 3rd month 1133 A.H. (1721 A.D.) after mid-day prayer.
2. Elected 1st Diwan of Vumba *circa* 1124 A.H. (1712 A.D.). Nicknamed Ruga. Died 4th of 1st month 1155 A.H. (1742 A.D.). Buried at Wasin.
3. Elected 1st Diwan of Kigomeni, 1158 A.H. (1745 A.D.). Nicknamed Maere. Died 24th of Rajab 1168 A.H. (1755 A.D.) buried at Kigomeni.
4. Father of Abubakari bin Ibadi, who was elected 2nd and last Diwan of Kigomeni in 1220 A.H. (1805 A.D.). Nicknamed Mnyeti. Died before 1239 A.H. (1824 A.D.) and buried at Kigomeni.
5. Died 10th of 1st month 1165 A.H. (1752 A.D.). Buried at Kigomeni.
6. Born *circa* 1117 A.H. (1705 A.D.). Elected 1st Diwan of Wasin in 1157 A.H. (1744 A.D.), and 2nd Diwan of Vumba in 1168 A.H. (1755 A.D.). Nicknamed Hasan. Died *circa* 1217 A.H. (1802 A.D.). Buried at Wasin.
7. Born the year Hasan bin Diwan Ruga chosen Diwan of Wasin (1157 A.H. or 1744 A.D.).
8. Elected 3rd Diwan of Wasin in 1239 A.H. (1824 A.D.). Nicknamed Kikambala. Poisoned at Mombasa in 1249 A.H. (1833 A.D.). Buried in Mombasa.
9. Born 12th day of the 3rd month 1148 A.H. (1735 A.D.). Elected Diwan but died *circa* 1217 A.H. (1802 A.D.) before he was enthroned. Buried at Wasin. Issue several children.
10. Elected Diwan of Wasin but died, before he was enthroned, in 1253 A.H. (1837 A.D.). Buried at Wasin.
11. Elected 4th and last Diwan of Wasin in 1253 A.H. (1837 A.D.) Enthroned 1st month 1281 A.H. (1864 A.D.). Nicknamed Ukungu. Died 1295 A.H. (1878 A.D.). Buried at Wasin.
12. Issue several children. Buried at Wasin. One of his sons, Nasir bin Alaui, was elected Diwan of Wasin in 1300 A.H. but died, before he was enthroned, in 1302 A.H. (1885 A.D.).

13. Issue several children. Buried at Wasin.
14. Elected 2nd Diwan of Wasin, *circa* 1218 A.H. (1802 A.D.). Died in 1239 A.H. (1824 A.D.). Buried at Bandani near Vanga. Nicknamed Sheikh. No descendants living.
15. Elected 2nd Diwan of Vanga in 1280 A.H. and enthroned 1st month of 1281 A.H. (1864 A.D.). Died 10th day Ramathan 1286 A.H. (1869 A.D.). Nicknamed Kilimia. Buried at Bandani near Vanga.
16. Elected 1st Diwan of Vanga 1239 A.H. (1824 A.D.). Nicknamed Pinda. Died 1280 A.H. (1863 A.D.). Buried at Bandani near Vanga. Descendants living.
17. Living at Tanga, German East Africa. Candidate for the office of Diwan of Vumba.
18. Elected 3rd Diwan of Vanga in 1288 A.H. (1871 A.D.). Nicknamed Marithia. Acknowledged as 3rd Diwan of Vumba after 1311 A.H. (1893 A.D.). *D.s.p.* 6th of 6th month 1315 (August 8th, 1897). Buried at Bandani, near Vanga.
19. Said to be candidate for the office of Diwan of Vumba.
20. Her son, Nasir, is a candidate for the office of Diwan of Vumba.

[EDITORIAL NOTE.—We are indebted for the MS. of this valuable paper to the kindness of the Foreign Office; in tendering our thanks we should like to point out how much Government servants, both in the colonies and in foreign countries, could do for Anthropology if their attention is once directed to the scientific and political importance of close observation of the races with whom they are brought in contact.

It has not been found possible to publish all the genealogical material; the unpublished MSS. are accessible to students, and can be examined in the Library of the Institute.]

VUMBA - EAST AFRICA

- Authorities -

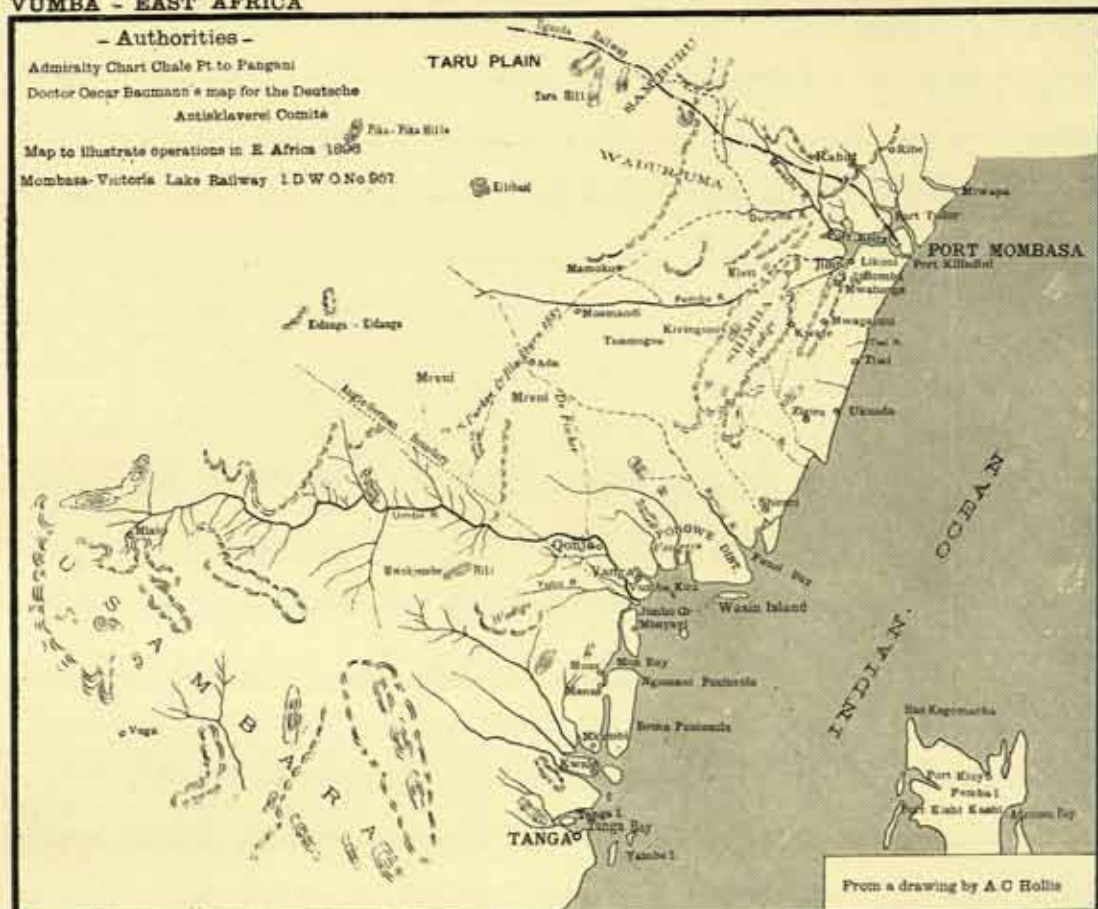
Admiralty Chart Chale Pt to Pangani

Doctor Oscar Baumann's map for the Deutsche

Antislavery Comité

Map to illustrate operations in E. Africa 1899

Mombasa-Victoria Lake Railway I.D.W.O. No 907

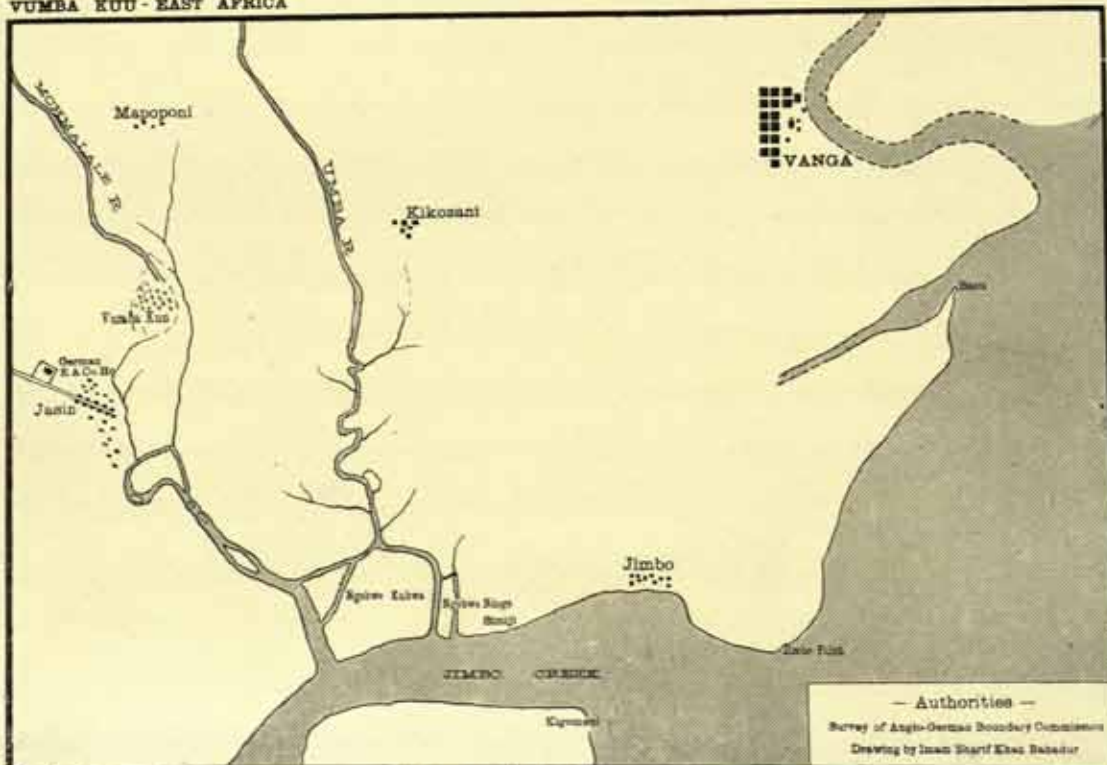


A. V. Dartmouth & G. J. H. Harcourt

Engl. Miles 0 10 20

Oxford 1901

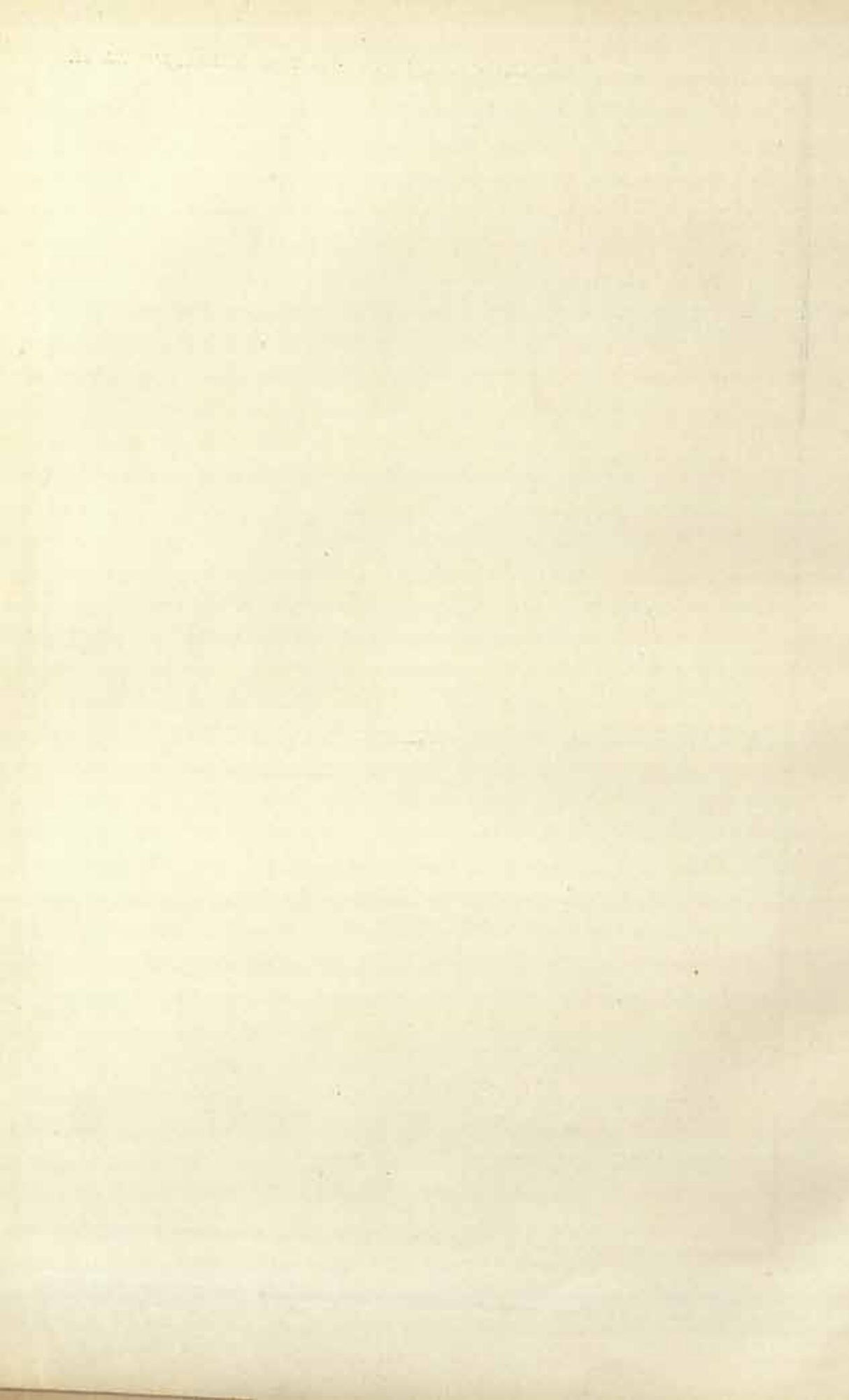
VUMBA KUU - EAST AFRICA

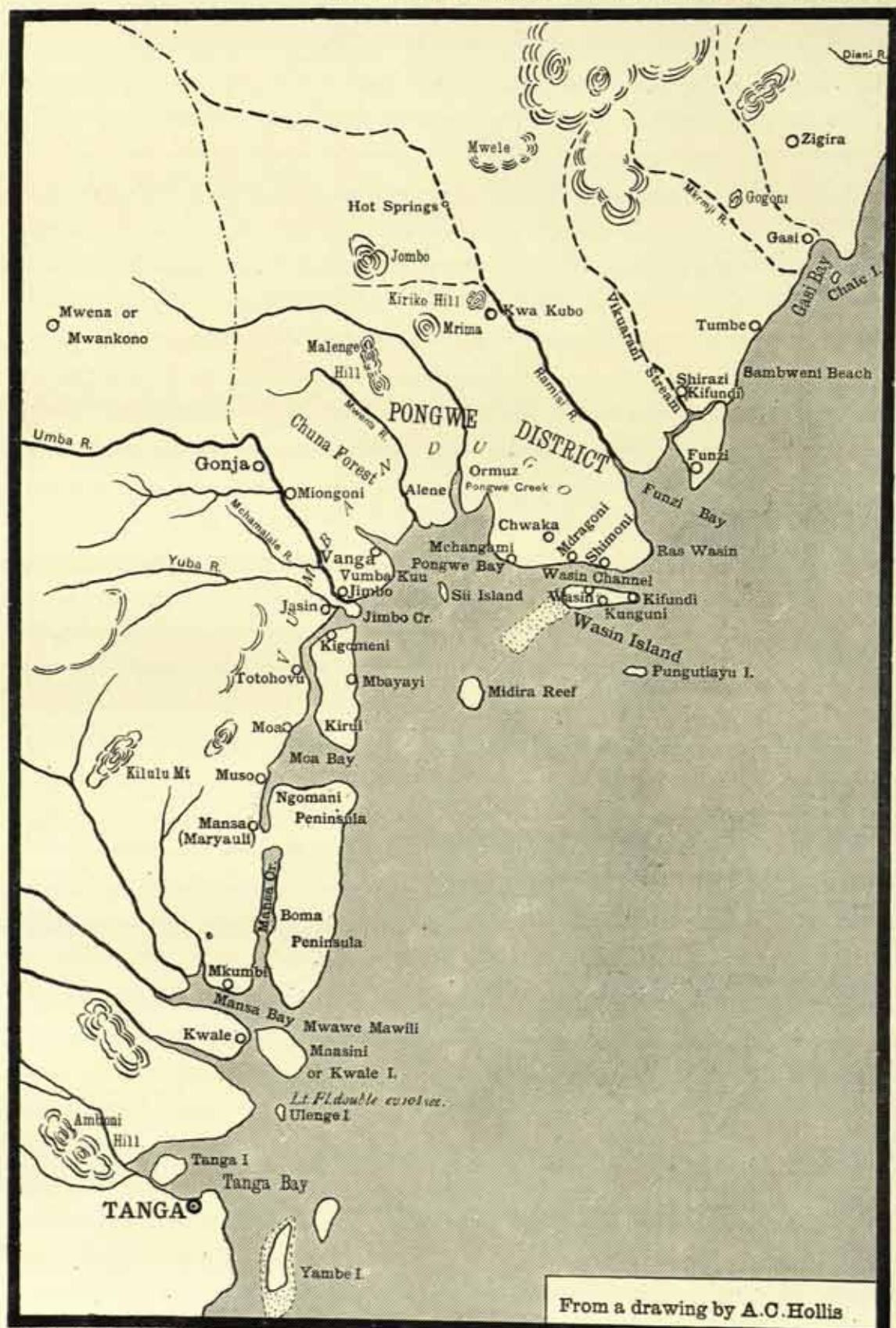


A. V. Dartmouth & G. J. H. Harcourt

Scale of feet 0 1000 2000 3000

- Authorities -
Survey of Anglo-German Boundary Commission
Drawing by Imam Sharif Khaz Bahadur





From a drawing by A.C. Hollis

B. V. Darbishire & O. J. R. Howarth

Engl Miles 0 5 10

Oxford 1901

THE NEIGHBOURHOOD OF VUMBA.

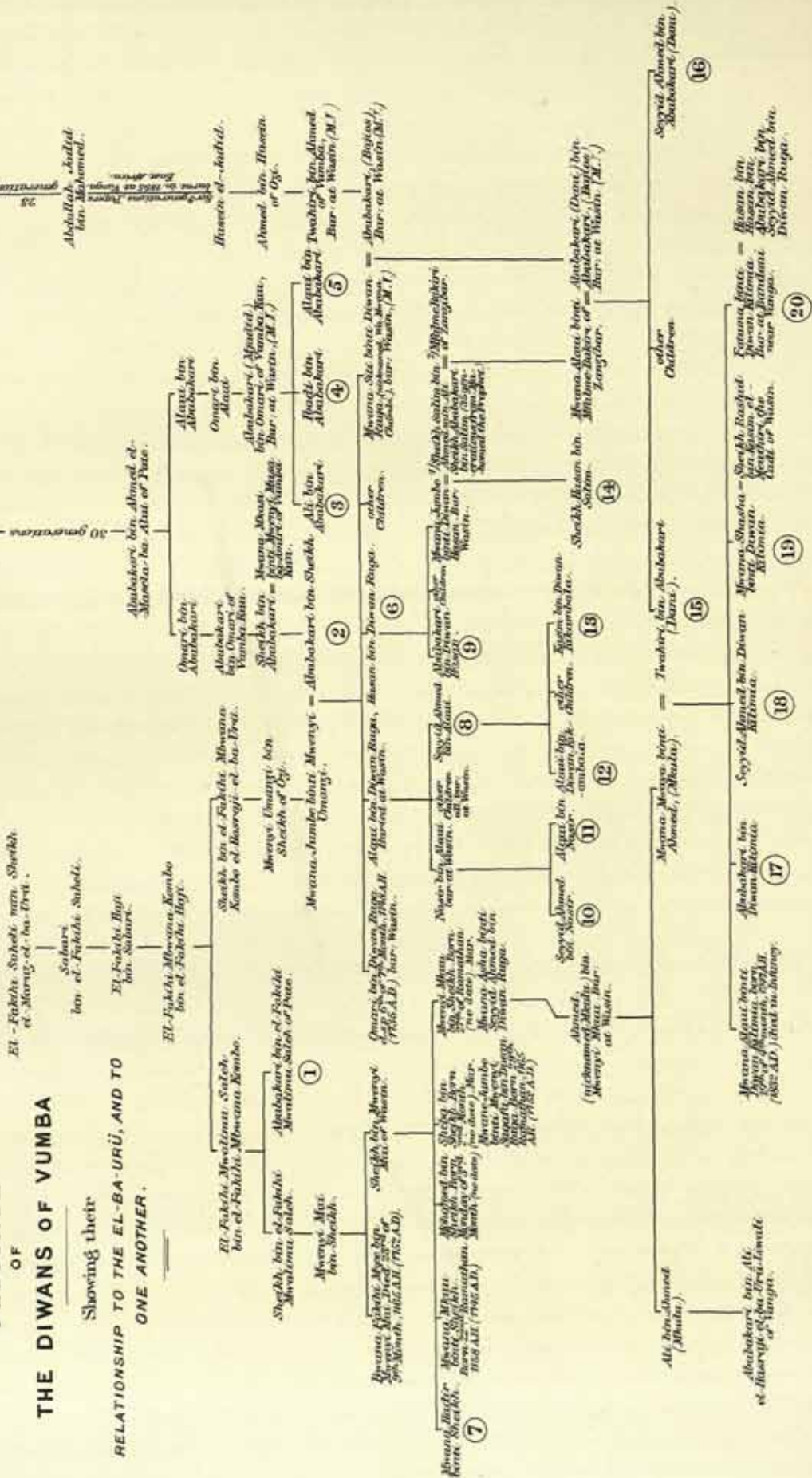
(The central part of the upper map on Plate XXVII: on a larger scale.)

PEDIGREE OF THE DIWANS OF VUMBA

Showing their
RELATIONSHIP TO THE EL-BA-URÜ, AND TO
ONE ANOTHER.

The Prophet Mahomed.

The Prophet Mahomed.



UNCLASSIFIED WORKED FLINTS.

BY H. STOPES.

[PRESENTED MAY 15TH, 1900. WITH PLATES XXX, XXXI, XXXII, XXXIII, XXXIV, XXXV.]

THE number of worked stones still surviving is very great. A considerable proportion have been saved from destruction by those acquainted with their value, and the number of men interested in the generally recognised forms is rapidly increasing. So we may confidently look forward to very considerable accessions to all our museums and other collections.

The interest in these stones is being awakened by so many thinkers recognising the fact that in them we have the sole surviving evidence of man's condition for by far the larger part of the long period during which he made tools, or used as instruments the stones he found adapted to his needs.

Of the countless ages during which tools (if they may be so called, and it is difficult to see why they should not) were used, but not intentionally fashioned, the stones themselves are the only surviving evidence we yet have, or may hope to procure for some time to come. Later, when our eyes and perceptions are trained to see and understand more than we now do, much evidence, hidden from us now, will be revealed, and we shall intelligently learn a good deal concerning our forefathers from the indications of wear still left on the stones they used.

Meanwhile, of the evidence, which we have and partially understand, too little use is made because we are fettered by prejudice, or cannot shake off our mental inertia.

Many of the views held until quite recently, and some also which we still cherish, are not in accordance with facts even as known to-day. In no branch of human study is it more desirable to be able to cultivate an inquiring habit of mind than in the opening chapters of human history. We know so little. Yet the little we know is so richly indicative of the ease with which we could add to our knowledge if only we would.

A *used* stone, however rough, is very often able to give certain indications of the manner of its use. Sometimes it shows the degree of cultivation of its user, although few deductions can be safely drawn until ample confirmatory evidence is to hand from other sources. Every stone, therefore, used or fashioned by early primitive peoples from all parts of the globe, demands preservation and consideration.

At present it is greatly to be feared that all collectors err in leaving to

perish myriads of stones which, did we but know more about them, would be as jealously guarded as are many of the treasures of the antiquary.

One sure method of adding to our stock of knowledge is to train our eyes to see. There are many indications of use and distinctions of outline in forms intentionally made, with which the majority, even of students, are as yet unfamiliar. To understand these we must take advantage of the philosophic method of exemplification, and multiply cognate specimens.

If I may be permitted I would refer to a plan I adopted many years ago, and have persistently adhered to, of visiting as frequently as possible certain pits in the gravels of the Thames valley where much removal of top-soils goes on continually to secure the supply of chalk below them for large cement works. Every stone I see there, which catches my attention, is carefully examined. If it shows any sign of use, it is kept. If entirely distinct from others, it is placed in a position where it is brought under my notice very frequently. Others with similar characters are nearly sure to be added from time to time. Eventually more turn up, showing clearly the purpose for which the type was used, the reason why they had the special form, or have upon them indications of use; and the whole group at once becomes quickened, as it were, into a living conception.

Take as an instance the ordinary axe or *hâche* with which some of our gravels teem in such bewildering variety. Many of these have points and edges which clearly show that they could never have been used in order to cut by hitting. Many years ago I found one with the point so obviously left long and slender on purpose, that, as I practically understand the use of many tools, I could no longer resist the conviction that such points had their use. This one stone enabled me to look at every "axe" with different eyes, and to differentiate scores of types. I mentally classify the majority of these new types as graving-tools. Many of them are admirably shaped to make incisions, grooves and hollows. Others again have led me to the conviction that many so-called axes could not have been used as choppers, even if nothing in their shape leads to such a suggestion. The worn edges are frequently utterly devoid of chips on one side, whilst hundreds of little flakes or splinters have been removed from the other side by the actual wear of common use. It is requisite, therefore, to notice very carefully all indication of wear and tear as well as of form in determining the names of many stones. It is obvious to all who handle many of these specimens that it would be of the utmost utility and convenience if we could determine certain names which could be universally adopted. I would venture to suggest that a new classification of very many so-called axes, and other nominally familiar types, might lead to useful results. A possible method of nomenclature and classification of *all* worked and used stones might be secured by a system which could be universally understood and applied. Let a small committee of real workers on the subject be appointed by the Anthropological Institute, with power to invite similar organisations in this country, Scandinavia, Germany, France, America, Russia and Egypt to agree to give to all stones some definite terminology. We should then know with precision

what was meant to be expressed in all communications, in any language, just as all chemical substances can follow the formulæ agreed upon and commonly recognised, no matter how the local or national names may vary.

A large number of tools, as I have said, show clearly that although very extensively used for rubbing or scraping, they never hit a blow of any force upon a hard substance. It is misleading to continue to call them axes. We may assume that they may have been used on bone, ivory and hard woods, for it is certain that men who had attained the skill they had in fashioning flint and other hard stones would freely use many materials, of which thus far no example has been identified, probably because the bulk of them have perished. They will assuredly be found, and it is our duty to look for them. We should regard a profusion of tools much worn by special use as a proof of work, nearly as strong as if we found the products of such use.

Sling-stones may be regarded as proof of knowledge of the art of slinging nearly equal to finding a sling. Missiles abound. We shall be glad we have preserved them, if some day a sling should be discovered. The real marvel is that none have as yet been found. A still more puzzling circumstance in connection with all stratified gravels containing implements is the total absence of any sign of the use of fire. I have picked up myriads of crinkled pebbles, hoping to find traces similar to those on the "potboilers," so abundant in neolithic camps, but thus far have not been satisfied with any one scrutinised. Such a stone or charcoal would be proof of fire. Many of them might show how the fire was used. An anchor-stone points to fashioning and use of canoes, or a sinker to the use of nets. It may be long before we find nets, or even the fragments of a canoe. Yet some of us will rejoice that we religiously cherish all anchors and net-weights, even when they occur in apparently impossible positions. We have to learn to free ourselves completely from the inferences based on the supposition that the want of evidence is equivalent to negative evidence. There are still many gaps to be filled in, and positive proof of very many things has still to be most patiently looked for. It is desirable most carefully to weigh the most improbable indications, or evidences, so slight that merely to suggest them is to provoke ridicule. Of this class good illustrations are furnished of clues left remaining on some stones of how they were handled or hafted.

The chief method of arrangement and classification I adopt is to group all tools by form and use, regardless of locality and age, although of course every stone is very carefully marked and fully catalogued. Thus hammer-stones, anvils, and potboilers from many places have been axes of splendid types. In some cases these may carry untouched edges as sharp as when first made. In the drawers of sundry of my cabinets may be found stones almost identically alike, brought from countries in each quarter of the globe, and of several materials such as quartz, flint, chert, porphyry, or any other of the numerous hard stones that have been used in the past or are still employed.

The great difficulty in arranging by form is the impossibility of drawing any

hard and fast line of separation between one class and another—in some cases even between several classes. There is no strict division between drills, scrapers, spoke-shaves, arrow-tips, spear-heads, graving-tools, etc.

It is now quite clear that many tools have doubtless been used for a diversity of purposes. Hence the need for a broader classification founded upon form and use, and perhaps differentiated by age and locality. Form is rarely confined to locality, and still less is it dominated by the material used.

We can find out much by grouping, and by closer scrutiny of the specimens in large collections. So-called savages can follow a trail with greater certainty and ease than our ablest scientists, merely because they attend to and understand detail which we in our superior knowledge ignore. To learn once more how our primitive forefathers lived we shall need to train our eyes to look at the faint, and in places nearly obliterated, trail they have left with keener insight and intelligence than that attributed to the best hunters of the backwoods of America or the bush of Australia. Fortunately stone best retains the traces left. When we add to our scientific preparation the insight and keenness of the savage who knows the value and use of almost invisible indications we shall see relatively in many stones more than we already discern. A few generations ago our most scientific men were utterly blind to facts now generally admitted, and so we too may believe that ere long we may read easily a language of which we are at present only forming the alphabet.

The paper was illustrated with twenty lantern slides and 370 specimens. Some of these are figured in the following plates.

Every stone figured is representative of a class, numbering in many instances hundreds of specimens, and in only one case including less than a dozen similar tools of the same dimensions and with like indications of use. No regard however is paid in the arrangement to locality or materials used.

The object of the work done is to help to determine the origin of common types of tools many of which have survived until the present day. A few of the stones shown have been intentionally selected for resemblances to other types, the purpose of which is supposed to be quite unlike. Enough is already known to show that indications of wear and use are more instructive than attention to form or the material of which the tool is fashioned.

The difficulty in obtaining photographs has prevented fuller illustration of unusual types of tools, and has led to delay in the publication of the paper.

Explanation of Plates.

Plate XXX.

This plate represents three stones each in six positions. C 1 is the full front view of a superbly worked flint (paleolith) from the Thames Valley Terrace gravels in Kent 80' O. D. where it was associated with a rich Pleistocene fauna. The signs of use on the whole of this implement, but especially at the smaller point, clearly indicate that notwithstanding its size and weight (2 lb. 7 ozs.) it had not been used as an axe. The side C 1 is very heavily abraded and worn from extended use, whilst the other side C 6

retains its cutting edge as sharp as in a fresh fracture. The whole of the edges are heavily patinated and in spots dentritical markings are distinct enough to show in the photograph and the admirable engraving.

B is one of the hard sandstone semi-ground (so-called) palaeoliths from Madras, India. The cutting edge is on the larger rounded point or butt, but a heavy blow was never struck with it upon any hard material.

A, from Somaliland, is of porphyry and has never been used for any hard work, not even for cutting soft wood.

These stones are selected to show remarkable similarity in differing material from widely scattered areas and (presumably) of very different age. All distinctly confirm the suggestion that they have not been used as axes.

In each of the stones represented in Plates XXX and XXXI the views show both fronts, sides and ends. Thus in Plate XXX, A 1 and A 6 are front and back, A 2 and A 5 right and left edges, A 3 the butt or thick end, and A 4 the point or supposed cutting end. In Plate XXXI, rows 1 and 3 are the end views.

Plate XXXI.

These nine stones are sharpened flint nodules and have all been used for heavy bruising or cutting, most probably the splitting of marrow bones. Each one is typical of many like itself, although the differences in the selected set do not seem very apparent. Many similar tools occur with very sharp or slightly worn edges. The majority fit the left hand. The markings of use on the stones shown, point to very heavy blows having been dealt with them, but not sufficiently heavy to leave signs of hammering upon substances harder than bone.

The advantages of having all six sides of a worked stone under the eye at one glance are not so apparent in this plate as in Plate XXX.

Plate XXXII.

The stones are here figured by two front views only. They show the knocking away of one corner for security of hafting, or the utilisation for this purpose of the natural conformation of flint nodules. They represent eleven groups of which G is the smallest, numerically (9), but all this group, G in particular, are very beautifully fashioned. The hafted ends, in some cases, show signs of wear, through lashing, which do not correspond to the indications of use on the (presumably) cutting edge, if they were used as tomahawks or battle axes.

The shape in every instance admits of secure attachment to a handle by lashing, rather than by growth in saplings.

Plate XXXIII.

Two flat views are given of each of eleven stones, which, for want of a better name, are called graving (or grooving) tools. Each one represents a considerable class. Apart from the improbability of such fine points as some of them possess ever having been used to strike blows, the whole of the indications of wear are upon one edge only, and show attrition by pressure which is invariably in one direction. A 1 or F 1 for instance would lose their points with a very moderate blow upon any hard substance. G has every sign of enormous use, yet the edge, G 2, shows not the slightest chipping on the cutting point. Many of the points on stones in this group, a few of which are in Plates XXXIII and XXXIV, show clearly that the makers did not fashion them with the intention of using them as axes.

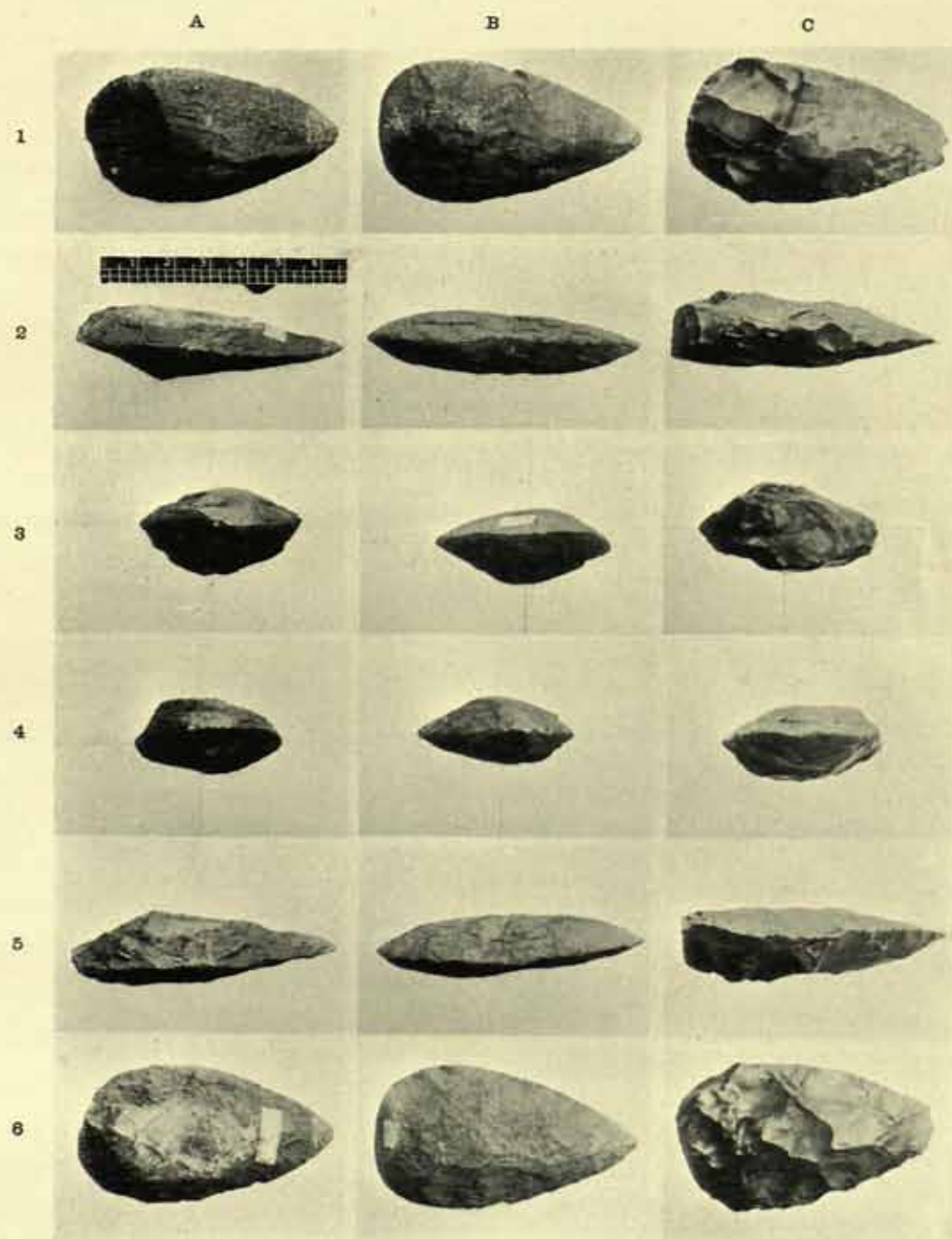
Plate XXXIV.

This is a continuation of Plate XXXIII, in which grooving tools could readily be mistaken for drills on the one side and spokeshaves on the other. Were such points, as in B D and L, given only half a turn in any substance as hard as ivory or dry oak, they would snap. As shown in N 2 the edge is free from flaws and could have been used in several different ways. This specimen is representative of an enormous class of tools which seem to have performed several functions. Together with all those shown in

Plate XXXV they could not under any circumstances have been used to drill any hard or tough substance. Many hundreds of these tools also show abrasion on two edges, in the precise positions one would expect if they had been used in plain up and down or reciprocal movements, but with the third edge untouched, which could not have been the case had they been turned round, as drills.

Plate XXXV.

Of these twenty-one stones the most noteworthy are U and V, which commence a series of over 700, leading up to and overlapping the peculiar escutcheon shaped stones from Egypt said to have differentiated from the hammering out of the edges of bronze tools. These, however, occur frequently in Pleistocene gravels in Kent. The combined spokeshaves and drills, J-O rows 2 and 5 are very abundant in the drift and later gravels of many localities. P is typical of the numerous class that, resembling drills and fabricators, show clearly signs of wear arising from graving or scraping. Q and R are exquisitely fashioned and the signs of abrasion remaining upon them entirely preclude any idea of their having been used as drills.



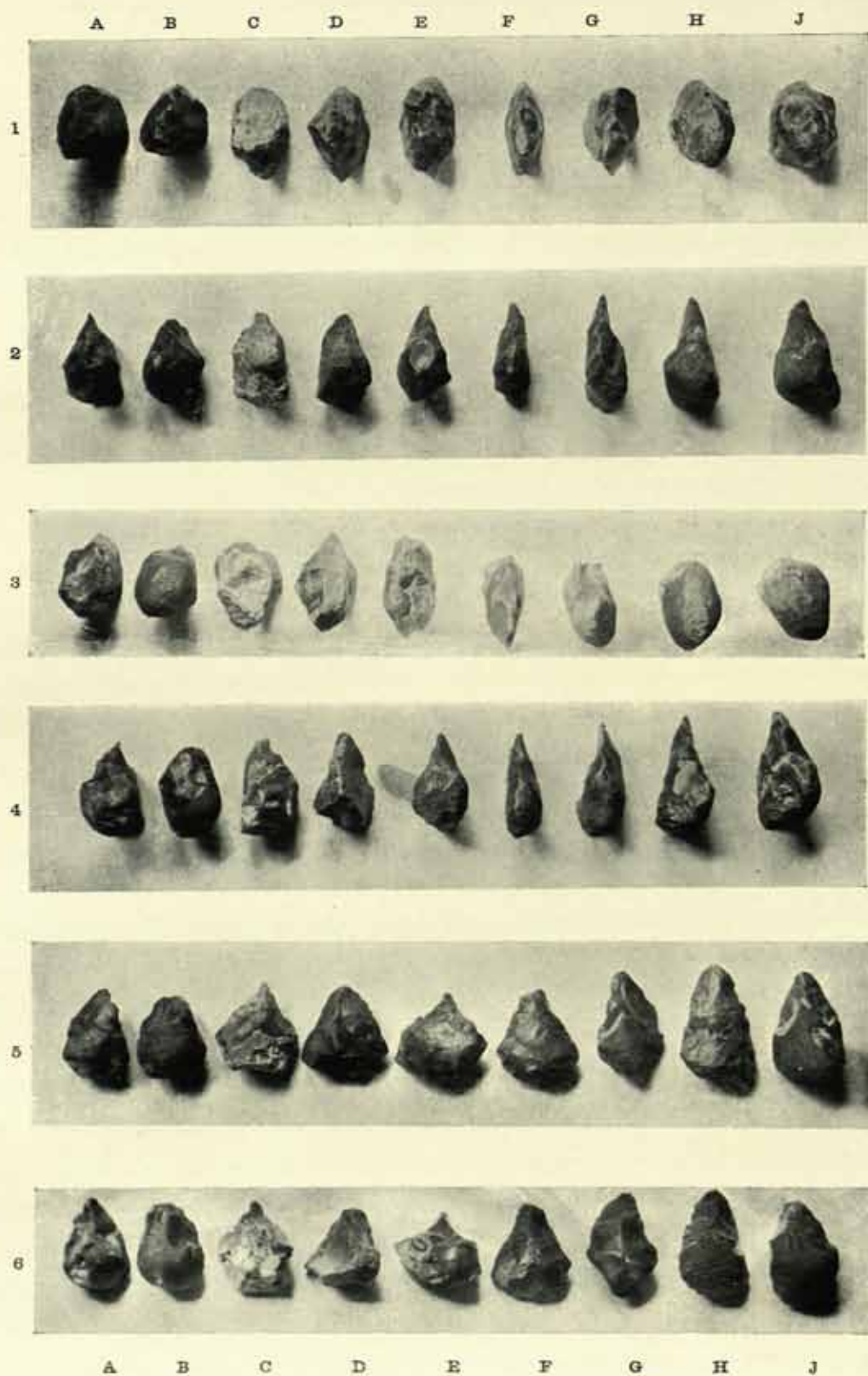
SIX VIEWS EACH OF THREE IMPLEMENTS.

A. PORPHYRY, SOMALILAND.

B. SANDSTONE, MADRAS.

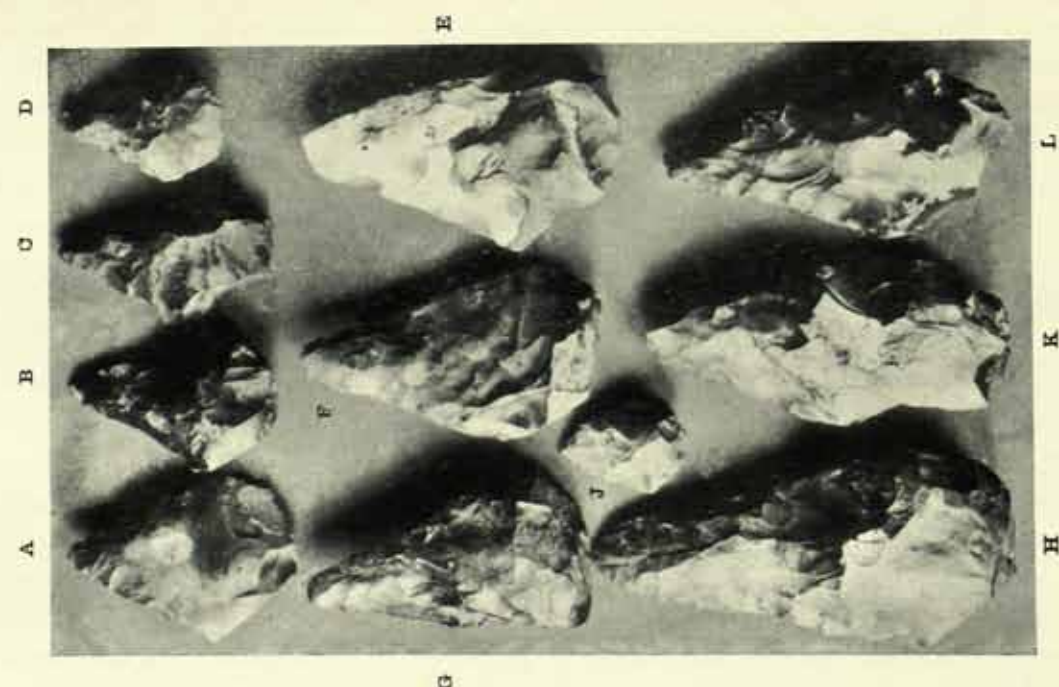
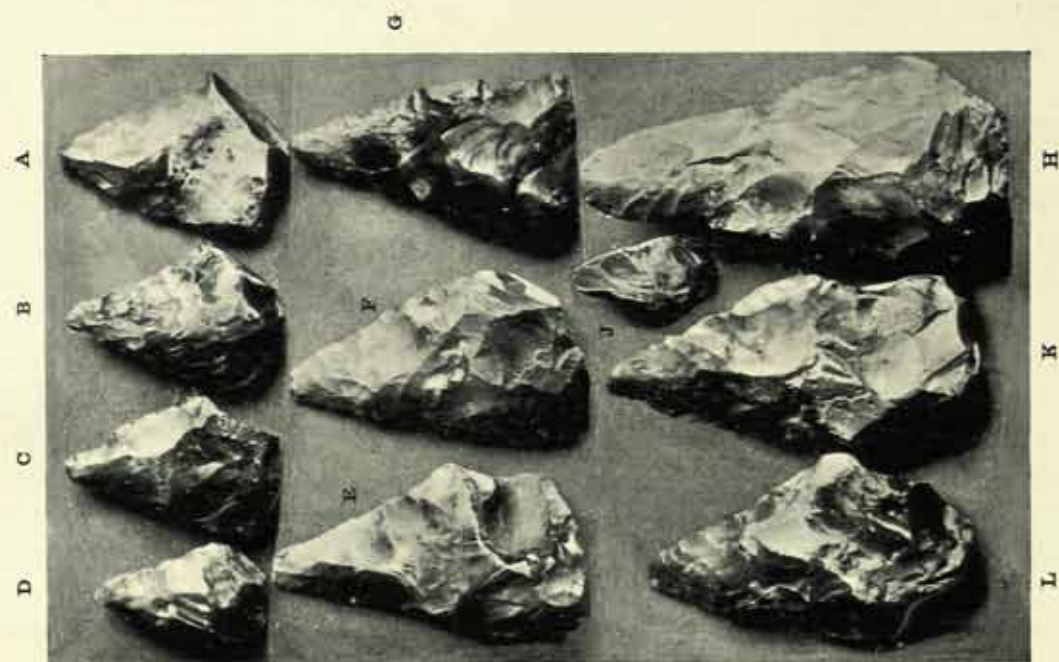
C. FLINT, KENT.

(FULL SIZED SCALE IN INCHES BELOW A.)

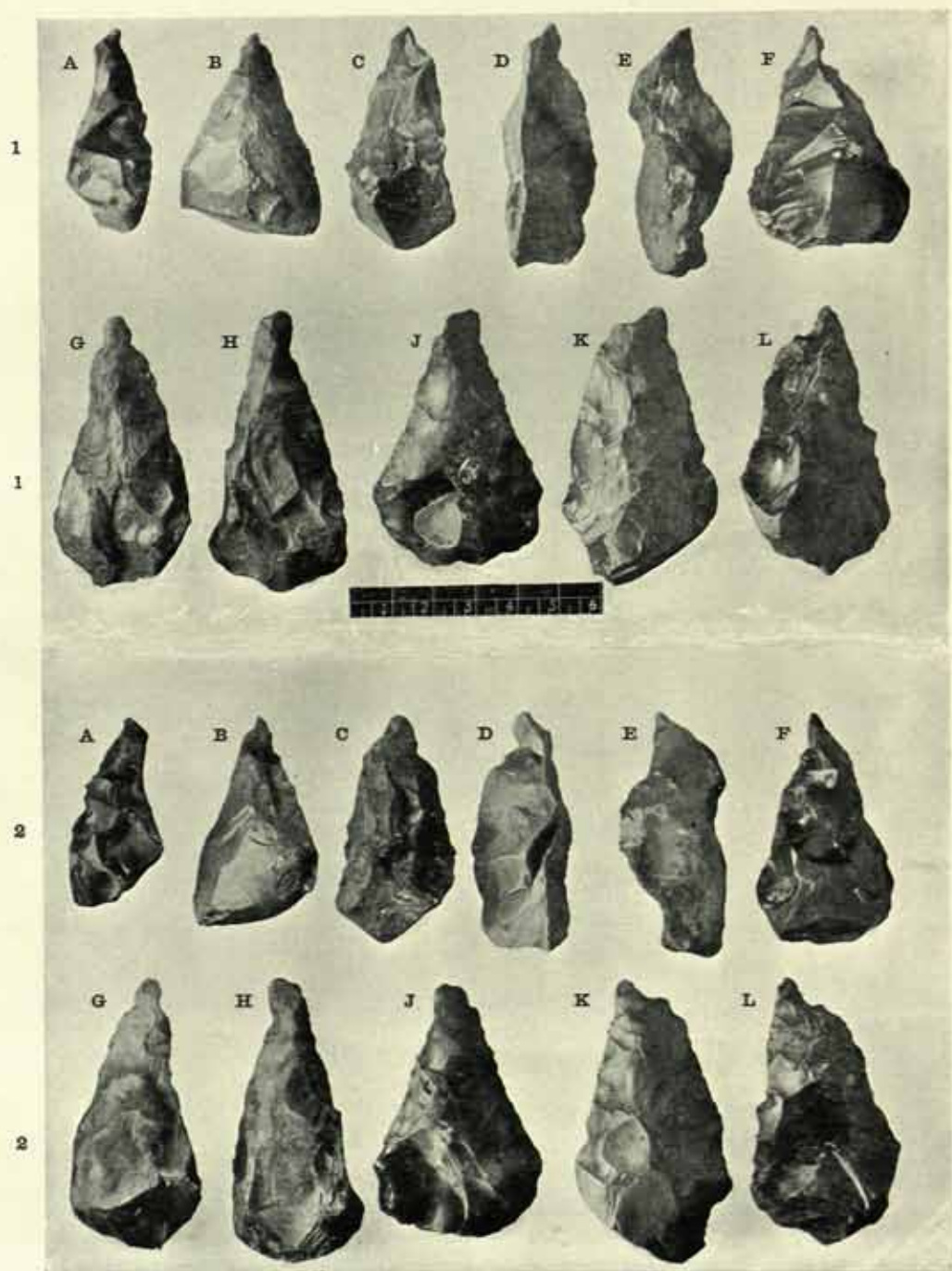


SIX VIEWS EACH OF 9 THICK ROUGH IMPLEMENTS FROM THE THAMES VALLEY TERRACE GRAVELS.

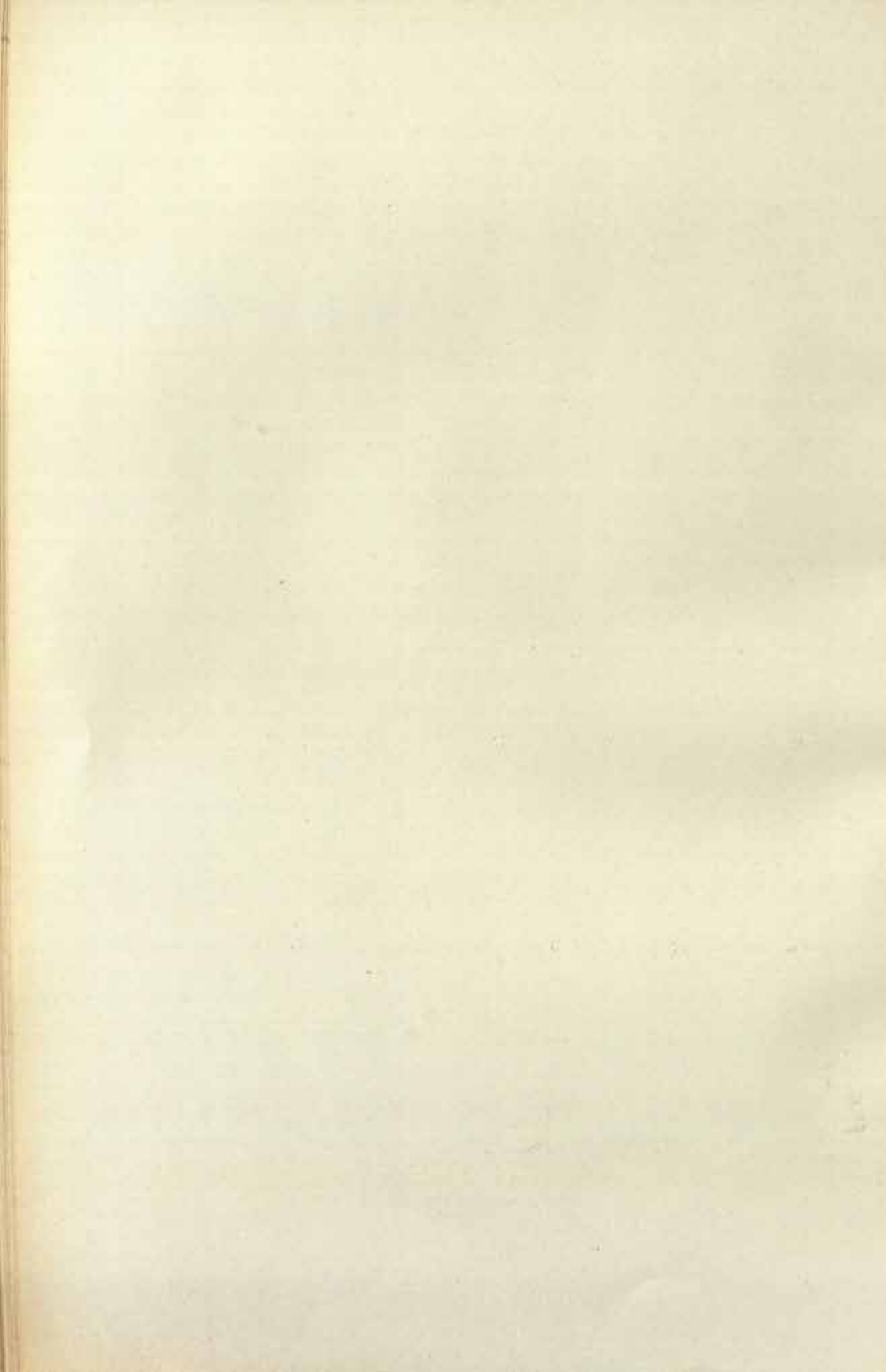
(SCALE IDENTICAL WITH PLATE XXX.)

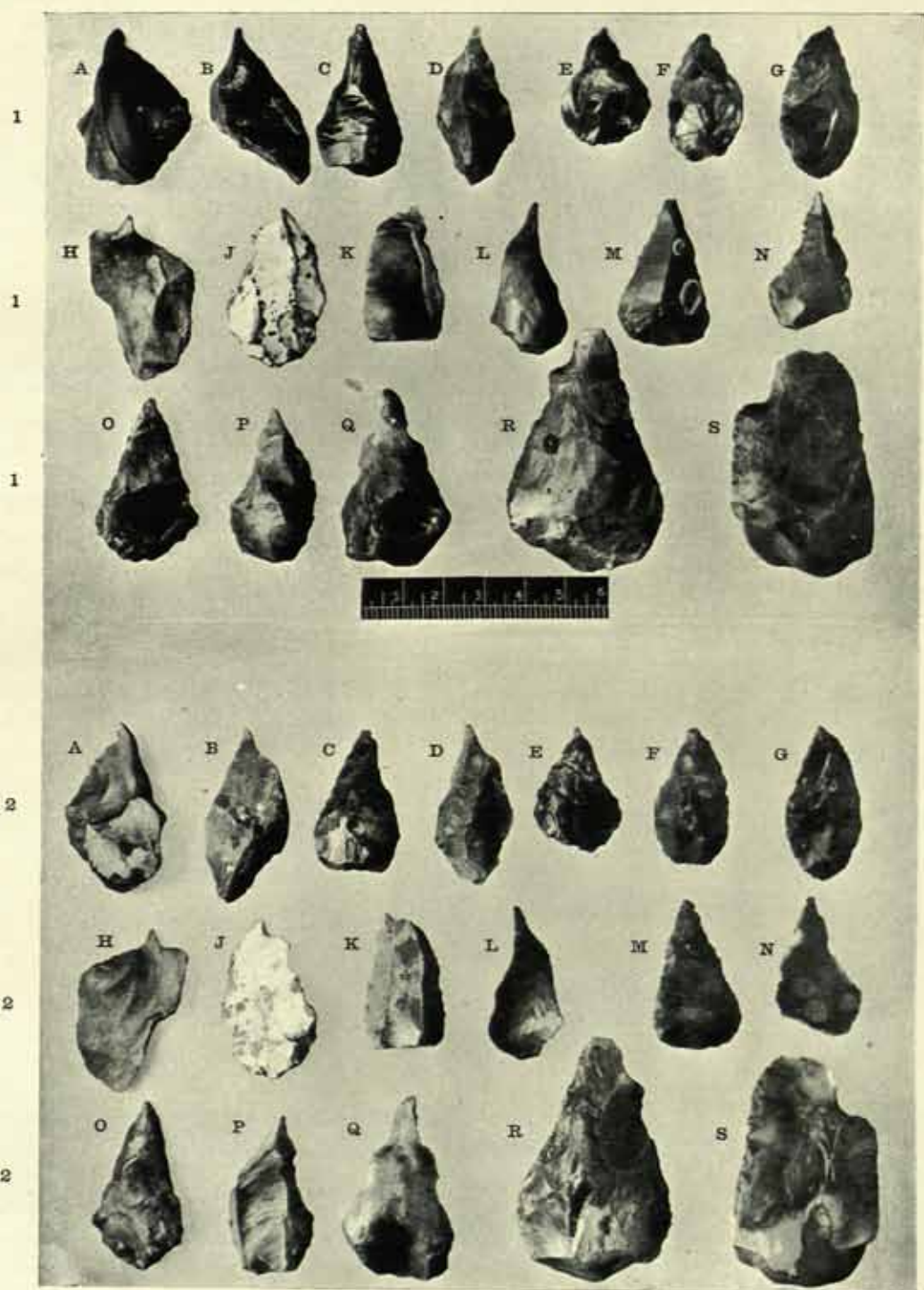


TWO VIEWS EACH OF 10 IMPLEMENTS FROM THE THAMES VALLEY TERRACE GRAVELS.
(SCALE IDENTICAL WITH PLATE XXX.)



TWO VIEWS EACH OF 11 GRAVING TOOLS.
LOCALITIES VARIED.
(FULL SIZED SCALE (6 INCHES LONG) BELOW J, 1.)

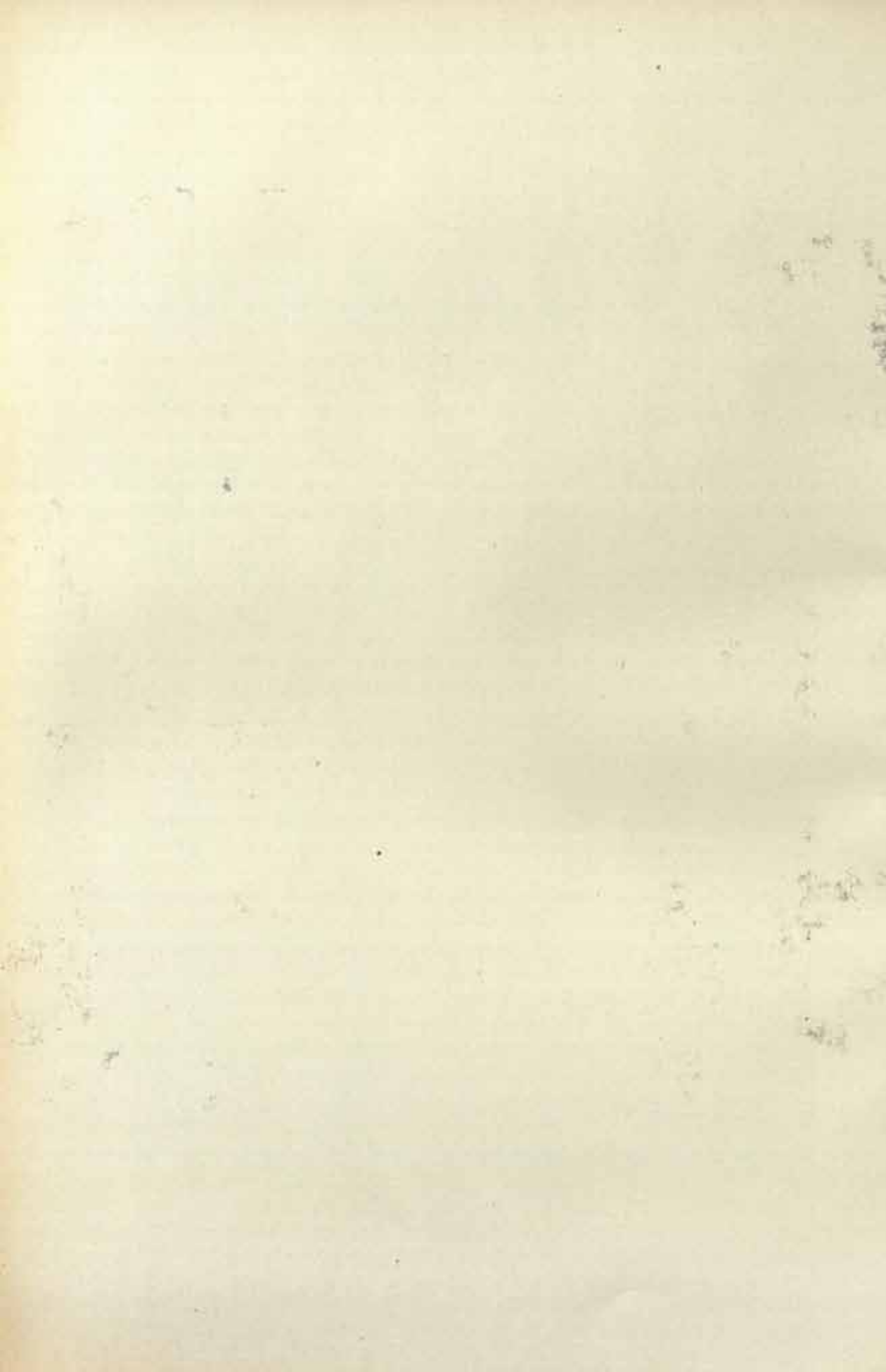


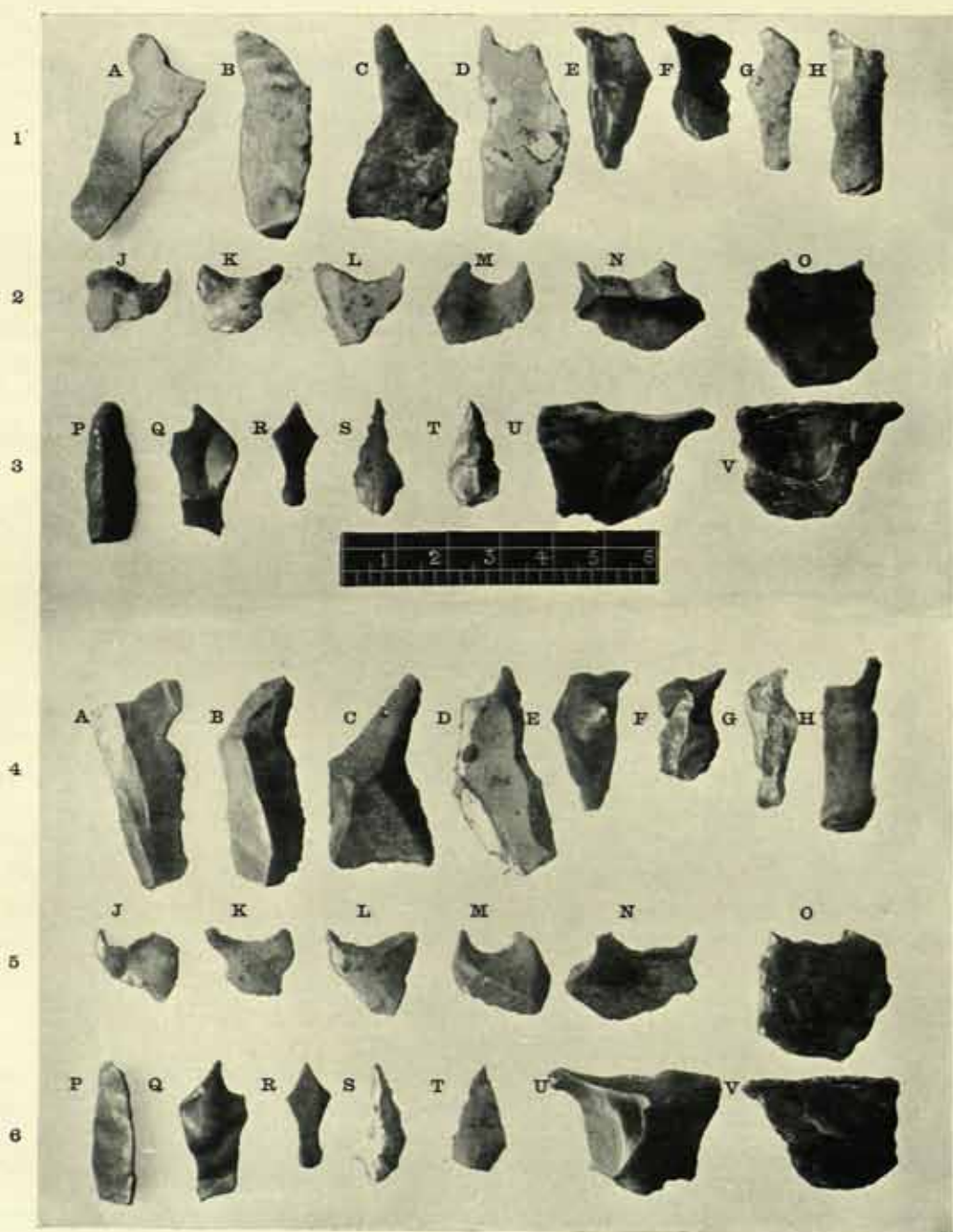


TWO VIEWS EACH OF 18 GRAVING TOOLS.

LOCALITIES VARIED.

(FULL SIZED SCALE, 6 INCHES LONG, BELOW Q R)





TWO VIEWS EACH OF 21 TOOLS, VARIOUS.

LOCALITIES MIXED.

(SCALE FULL SIZED, 6 INCHES LONG.)

SURVIVALS AMONG THE KAPPADOKIAN KIZILBASH (BEKTASH).

BY J. W. CROWFOOT.

[WITH PLATES XXXVI TO XXXVIII.]

LAST summer (1900), with the kind assistance of the Craven Committee in Oxford and the Fellows of Brasenose, I was sent with Mr. J. G. C. Anderson to make archaeological researches in the ancient provinces of Lykaonia and Kappadokia. I knew that there were several settlements of Kizilbash sprinkled over the latter province, and in the hope of securing fresh anthropological matter, I applied to the Council of this Institute for the loan of some instruments. For their kind accession to this request, I offer my warmest thanks to all concerned: my only regret is that I was able to make such scant use of the loan. This was due mainly to the proverbial impossibility of serving two masters: the archaeological evidence directed us invariably to roads where there were no Kizilbash. At last it was only by separating from my companion and making a private excursion in the last week of our sojourn that I was able to collect the following material. At any other time of the year I could have got more, but in August harvesting was in full swing, the villagers slept near their crops or their threshing-floors, and only the old and the rich remained in the villages. On the other hand, I had one great advantage in the company of a servant whom we have tested in three consecutive seasons—Michali Ulkeroglu,—to whose tact and *bonhomie* I am largely indebted for such success as I had.

Throughout the summer I made repeated inquiries as to the character of the Kizilbash and obtained the most various answers. The Christians were agreed that they were good people, and that I should meet with no difficulties, whereas the orthodox Turk hates and despises them. The name Kizilbash is in fact an offensive nickname born of this animosity: literally it means Red Head and is at least four centuries old; many fanciful stories have been told as to its origin in Red Caps and so forth, but in Turkey it has now simply an obscene meaning. It is very loosely used, a certain Khaimakam, for instance, was pointed out to me as a Kizilbash: why? Because he drank wine and made no public prayers. Another name almost as vague is Allevi, worshipper of Ali, but the name the people I visited used among themselves was Bektash. One giving orders to another calls out "Hie! Bektash!" The name is at least 600 years old: it was borne by a famous dervish and handed down by him to an order of a half-military type closely connected with the Janissaries. The most valuable account of the Kappadokian Kizilbash known to me is that in *Murray's Guide*, from the pen of Sir Charles Wilson: as it does not run to more than twenty lines it will be admitted that there is room for more detailed information. Sir Charles Wilson (ed. 1895, p. [66]) describes them as "a large section of the population which is either Shia in faith, or professes a religion which is a strange mixture of Shiism, Paganism, Manichæism, and Christianity,—sometimes one, sometimes another element predominating. . . . They appear to be partly derived from Shias of

Turkish origin, who were forcibly transplanted from Persia during the reigns of Selim I and Suleiman I; and partly from the original inhabitants who, after having been worshippers of the Great Goddess Ma, adopted Christianity, became deeply tainted with Manichæism, and, later, embracing Islam during the Seljûk period, were exposed to Persian religious influences." It is clear that the Kizilbash vary very much in different regions (they are found as far east as Afghanistan) and in all that follows I should like it clearly understood that my words apply only to those I have personally studied and may therefore be quite inapplicable elsewhere. (See also Humann and Puchstein, *Reisen in Kleinasien*, p. 83.)

I.

The villages with which I propose to deal lie both in the province of Angora, close to the eastern bank of the Halys. Two important roads run eastwards from Angora; the northerly one crosses the river by the bridge of Kaledjik, the southerly one leading through Kirshehr and Hadji Bektash to Cæsarea, crosses it at Cheshnir Keuprusu. At the latter I heard of two Kizilbash villages in the neighbourhood—Haidar-es-Sultan and Hassan-dede, and of these the last was described as the larger, wealthier and more intelligent: towards them accordingly I set my face. (See Map, Plate XXXVI.)

Cheshnir Keuprusu is built just at the point where the Halys enters a narrow ravine; to the south the country is open, northwards on both banks the steep rocks which wall in the river, reach back towards high and barren hills. After crossing the river, the carriage road goes in a south-easterly direction, making a more or less gradual climb, but the straightest road to Haidar-es-Sultan is a rough horse-path, which leaves the main road on the right and zigzags up the hills. In an hour-and-a-half we got over the crest of the ridge, lost sight of the river and found ourselves overlooking the village, which lies thus perched on a high upland, shut in on all sides, close to a great military and trade route, but so entirely secluded from it and with such scanty intrinsic attractions, that not one in a thousand passing along the road would ever hear of its existence. This combination of circumstances is common in Asia Minor, and seems naturally adapted to provide "cities of refuge" or backwaters of ancient custom, but is not favourable enough to stimulate the refugees to develop a new and vigorous culture. In this district the nearest town of any size is Denek Maden, and the most important people living in the neighbourhood are Turkomans, who have been settled here for about nine centuries: besides these, there are a few Kurds, Yuruks, Armenians, and "Turks," but from all alike the Kizilbash stand severely aloof.

Haidar-es-Sultan, the first village we reached, is divided into two parts, but together they do not contain more than thirty houses. In the smaller division is a walled court, and in it stands the village mosque, the *turbah* or tomb of a great man, a wonderful well, and the rooms and stabling set apart for guests. The whole enclosure is built upon the site of a Christian monastery, as the Sheikh pointed out to me, and as the remains, marble columns of rough workmanship and a

block with a cross upon it, clearly show. The early name of the site is unknown; the present name is derived from the occupant of the tomb, of whom more anon.

The tomb inside the *turbah* is covered with the usual green hangings, and in one corner of the building stands the banner of Ali; the other appurtenances consist of a wooden club, a small wooden dagger which has been blessed by a holy man and therefore still possesses mystical powers in the hands of the faithful, and two curious bronze implements, one like a long spoon, the other like a spear head, and both said to have been used in war. Mosque and tomb were restored about 50 years ago and externally differ innowise from the types common in Anatolia. The one unique feature in the enclosure is the well, which is strongly impregnated with sulphur and covered with a white slab of marble with a hole cut in it, large enough to put the head through. The Sheikh said it was a mystical matter, and refused at first to answer any questions thereanent. Later, however, he told me of a wise woman in the village who could foretell the future, but when I asked to be allowed to consult her myself, they demurred that I did not know enough Turkish to understand all she would say. On my offering to take my Greek servant as interpreter, they objected that he might learn more about my future than I should care to have him know. But finally a fee removed their last scruples, and the sibyl was fetched. An old woman, unveiled and dressed in the ungainly fashion of the country, of short stature, with reddened hair, a thick nose and a pasty, doughlike complexion; there was nothing romantic in her outward appearance. She looked suspiciously at me—probably I was the first European she had seen,—but had the expression of a stupid, sluggish-witted rustic, the last person to play an elaborate joke upon one. Silently she led me to the well and told me to look down and sniff the sulphur. Then she threw herself flat upon the ground, thrust her head well through the hole, and inhaled long breaths of the foul air until she began to groan. Lifting her head slightly, she uttered a few words, but the inspiration was incomplete and she had to put her head through the hole again and draw in breath after breath once more. She groaned again and began to kick convulsively, so the Sheikh's son knelt by her side and held her under the armpits, and thus supported she delivered the rest of the divine message. Like some other oracles, in spite of all her efforts this was disappointingly vague. "I was not so pious as I should be: if I would only walk in the path of God, He would give me the desire of my heart, and at last I should brilliantly achieve the quest now absorbing my thoughts. One day I should return with my servant to Haidar-es-Sultan, and, as an earnest of my repentance, it behoved me to offer an oke of candles and sacrifice a sheep." The getting of the oracle quite exhausted the old woman, and she remained about with us in the enclosure for about an hour in a dazed state, without uttering a word: then she walked off alone as silently as she had come.

Just as the priest is called a Sheikh, the prophetess is called a Sheikhin, and her power was described as a deodand: when one prophetess died, God sent this gift to another but always to a woman, and the office was not hereditary, like the

Sheikli's, which went by strict primogeniture. The people said she was much frequented, but I did not learn the character of any other of her oracles. The method of obtaining them and her sex suggest of course ancient examples of hydromancy, but I know of no shrine where the procedure was exactly the same. I take the original idea implicit in it to be that there is a spirit in the well: to it the inquirer must introduce himself, hence I was obliged first to inhale the fumes; then the spirit is able to communicate his knowledge to a chosen prophetess, when she has reached a properly ecstatic condition: lastly, the spirit in question cannot be wholly dissociated from the occupant of the tomb.

Besides inquirers into the future, diseased people, especially the blind and the weakminded, came to the shrine, and the window-bars of the mosque had one of the largest collections of rags I have ever seen. Murray speaks of a great sacrifice of sheep in summer at this *tekke*; the only great sacrifice I could hear of was held in September, and corresponds to a Persian feast, but it is a common thing for a good Kizilbash or a grateful visitor to offer a sheep at any season of the year. Similarly, Sir Henry Rawlinson describes a sanctuary of the Ah-Allahis in Holwân called the tomb of David, which he never passed "without seeing the remains of a bleeding sacrifice," and which was visited by pilgrims from all parts of Kurdistan. (*Journal of the Royal Geographical Society*, ix (1839), p. 39.)

The second village to which I went, Hassan-dede, lies close to the Halys on the eastern bank, two and a half hours south of the easy ford at Yakshi Khan and three and a half hours west of Denek Maden. It contains from ninety to a hundred houses, and I found the people much more intelligent and quick-witted than those at Haidar. They received me with a dignified courtesy which I have never seen surpassed even among the Turks; the Sheikh introduced those present in the "Odah," adding with a conscious pride the family name in some cases, and giving three or four of the more considerable the title of Effendi. They struck me as more serious than the average villager; evidently they kept up and valued their own traditions, and, though quite communicative up to a certain point at least, did not ask the usual questions about my country, which merely idle curiosity might prompt. They were, too, energetic and prosperous, and volunteered to show me what they thought likely to be of interest.

In the southern outskirts of the village stands a large well-built mosque with a minaret in which is built a stone from Mecca, and beside it two *turbehs* where lights were burning when I rode into the village late after sundown. One *turbah* covers the coffin of Hassan, draped as usual with a military banner in one corner, the second his two sons and daughter, the former each surmounted by a white woollen fez similar to that worn by the present Sheikh. Certain revenues had been set apart, by the Sultan Mustapha they said, for the maintenance of the mosque, formerly amounting to 6,000 piastres a year, but the financial stress of recent years has compelled the present Sultan to reduce this by two-thirds, let us hope only temporarily.

In this village I was able to correct and amplify the traditional history I had picked up in the former place. The Sheikh at Haidar-es-Sultan said that Haidar was the son of the King of Persia and came from Khorassan from a town named Yassevi; he was also called Khodja Ahmed¹ and was the disciple of the famous Hadji Bektash. With the latter he travelled to Cæsarea, and there took a Christian named Mēnē to wife, and together they came to the place of his tomb, where they begat children and died—the whole village now claiming descent from him. This took place, said the Sheikh, long before the Osmanlis came into the country, "about the time of Mohammed"! In Hassan-dede they said that Haidar and Hadji Bektash came there 670 or 650 years ago, and the fourteenth century, the date given by historians for the famous dervish who gave the Janissaries their name and emblem, tallies more closely with this. The connexion between Haidar-es-Sultan and Hadji Bektash is intimate enough to-day; the present Sheikh told me that he had visited the shrine of Hadji Bektash, which is about three days to the south, nine times, and further that they received frequent visits from Bektash dervishes. I met one of the latter at Kirsbehr, and he too said that they came from Khorassan, before the time of the Osmanlis. Hassan, the hero of Hassan-dede, came from the same place, but only 400 years ago; however, being a holy man, he had known his precursors in a previous state and his teaching was the same—a chance betrayal of the belief in metempsychosis which underlies so many of the strange identifications one hears. The present Sheikh claims direct descent from him, and introduced me specially to several of his kinsmen; their family name was Salah-ed-din, and in all there were over twenty houses in the village filled by the same stock, the rest of the village being Bektash, but descended from natives whom Hassan found there on his arrival. All the Salah-ed-din were buried together close round the tombs of their ancestors; some are rich, some poor, and as they intermarry freely with other Bektash, but never with Osmanlis, the purity of their stock is no greater than that of their fellows. The Sheikh himself told me most of these particulars and took me round the tombs, but on purely historical questions he frequently bowed to the correction of others. The Seljuk Turks they all professed to hold in pious memory, and referred to the Mevlevi dervishes at Konia and those of Hadji Bairam at Angora almost as kinsmen. On the other hand I was astonished to hear them repeat twice that they loathed the Janissaries as their bitterest enemies.

II.

The fragmentary memories which I have recorded above have at least one indisputable value: they illustrate to what an extent the modern Anatolian villager

¹ An early sheikh of the Nakshbendi order, who hailed from Yassevi. Hammer-Purgstall (*Gesch. des Osman. Reiches*, I, p. 36) refers to a Turkish book, *Neschhat* (misprint for *Reschhat*) *ainul hajjat*, for full particulars of his life. He is mentioned also by Ramsay as a miracle worker: "I have observed the veneration of Karaja (*sic*) Ahmed at (two villages in Phrygia). At the latter sick persons sit in the *turbe* all night with their feet in a sort of stocks, and thus are cured" (*Religious Veneration in Asia Minor*, 9th Congress of Orientalists, London, 1893, pp. 381-391).

lives in the past, and I venture to think that they show that his traditions have been rather unduly depreciated. These legends, confused as they may be, do refer to definite historical occurrences, and though I must leave the graver problems which they raise to others to solve, I may be allowed to add a few notes which will vindicate a respectable antiquity for these stories, if not historical accuracy.

The two names which they bear, Bektash among themselves, and Kizilbash among the Turks, give us a key to their true position. The open animosity which now prevails between Bektash and Osmanli is not a century old, it dates from the disappearance of the Janissaries, which was followed by a general persecution of the Bektash. The latter remain, however, in great numbers in many parts of the Turkish empire; in Cairo, for example, they have an important *tekke*. But the recent persecution was not the first cause of difference between the two; an Egyptian friend has, for instance, given me a reference to Hadji Bektash from a collection of memoirs called *The Anemone* (الشقائق النعمانية), published at Cairo in 1277 Hegira, but written by a Turk of Constantinople in the sixteenth century (A.H. 965). "His tomb is in Turkey, and over it a cupola, and it has a small mosque. And in this our time certain heathen (ملحد—a strong word) with false pretensions pretend to belong to him, but he denies them without doubt." Wherever they are found, the same mysterious and discreditable tales cluster round them, and it seems certain anyhow that they reach back at least to the fourteenth century, the time of the "Anatolian Decarchy," and that kings of the earth delighted to honour them once and do so no longer.

The name Kizilbash, on the other hand, has different connexions, and is not, I believe, by any means generally applied to Bektash; the two are quite distinct, and I was surprised to hear the former using it among themselves. The double name can, however, be very easily explained, and sufficient material to answer my immediate purpose is to be found in the writings of an old Elizabethan historian. Samuel Purchas published the third edition of *His Pilgrimage* in the year 1617¹; he was a City clergyman who made a great compilation of all that was known of the religious history of the world, in which he incorporated much unpublished material supplied by the travellers and merchants he met in London, men gifted with the keen observation and feeling for detail characteristic of the time. Of the Kizilbash movement he gives a tolerably full account, based in many parts upon the testimony of European eye-witnesses; some slight contradictions may be here ignored as immaterial to our quest. In the latter half of the fifteenth century the dominion of the Osmanli Sultans over the eastern parts of Anatolia was still extremely precarious; several princes, both Muslim and Christian, still maintained their independence, and Persia, then under Uzun Hassan, the greatest of the White Pelt dynasty (Turkoman), was a really formidable rival. Uzun Hassan was connected by marriage with the Emperor of Trebizonde, and a daughter of his married a great

¹ See pp. 430 foll. Compare von Hammer, *Geschichte*, ii, p. 334 foll. and Zinkeisen, *Geschichte*, ii, p. 343 foll., p. 547 foll.

sheikh named Haidar. Haidar came of a famous family of mystics long settled at Erdebil, and relying in part no doubt upon his connexion with the king, aimed at political power; finally he was killed in a semi-religious war in 1488. The death of Uzun Hassan and the murderous rivalry and final extinction of his house made more easy the success of Ismail, the son of Haidar, who eventually became master of Persia, and founded the Saafi-ed-din dynasty. Both father and son combined religion with politics and naturally set themselves at the head of the learned mystics, the Sufis; they preached Ali and posed as protectors and patrons of those Sufis, who remained in Anatolia as a relic of the Seljuk empire, which of course was highly offensive to the Osmanlis. According to Purchas, Ismail took as his cognizance the Red Cap, and, whether this be so or not, the name Kizilbash now appears applied generally to his followers. Like his father, he invoked curses on Abu-bekir, Osman, and Omar; to this day no Bektash will use their names. Purchas repeats as one alternative version the story of Haidar's marriage with a Christian named "Martha, daughter of Lady Despina, who was daughter of Kalo Joannes, Emperor of Trebizonde." The names only and the places have been slightly changed in the modern tradition; the Christian connexion abides and answers to a real reciprocity of friendship and fellow-feeling. The actual occupant of the tomb which I saw, if there be one at all, certainly cannot be Haidar, for the sphere of Haidar's life and death was far away to the east, but he is no less certainly identified with him by the villagers.

Again Purchas (pp. 441, 2) tells the story of two disciples of Haidar, "Chasan Shelife and Schach Culi," who fled to Armenia Minor; there they lived for a while as austere dervishes, and gradually spreading their fame abroad, at last gathered round them an army of fanatical Kizilbash and were only defeated and slain after overrunning the greater part of Asia Minor. The date given me by the people at Hassan-dede and the name make it probable that their hero was this same disciple.

Other details will prove how faithfully the Bektash have clung to their old practices. I was told that they shave the beard sometimes but never the moustaches, and Professor von Luschan makes the same report of the Lykian Tachtadji. Purchas says, "Ismail was of faire countenance, of reasonable stature, . . . shaven abut the mustaches." In return for the opprobrious nickname of Kizilbash, I heard that the Bektash nickname the Osmanli "Hounds"—Hazyr. Purchas says "the Sophians (=Sufis) are enemies unto Dogs, killing all they find," and Ismail himself "killed all the Dogs in Tauris" (=Tabreez). And speaking of a later period he adds, "It is the common opinion that the greatest part of the Mahumetans in Soria and of Asia Minor are secretly of that sect"; and so too wrote Marcantonio Barbaro in 1573 (quoted by Zinkeisen, iii, p. 567).

These Bektash, then, are, as they say, true representatives of a "moment" before the rule of the Osmanlis; when the latter triumphed, the Bektash were men already learned in the wisdom of the day and ever since have chafed under the foreign yoke. The name of Kizilbash they owe to the attempts which they made about the year 1500 to win independence, and the banners and weapons of battle

which they keep in their *tekkes* are trophies of these vain religious wars, in curious contrast with their present retiring tranquillity. The incidents of their rise and fall will remind many of another episode enacted on the same stage and with the same result, the revolt of the Paulician heretics in the ninth century.

III.

Enough has now been said to make clear the historical place of these Bektash during the last six or seven centuries, but this by no means exhausts our tale. As Ramsay has repeatedly shown, survivals of ancient rite and custom still linger all over Anatolia, alike among Christians and Muslims, but among certain heretical sects these survivals are far more numerous and form indeed the heart of the people's life. Professor von Luschan, in his famous discussion of the Tachtadji (*Archiv für Anthropologie*, 1891, pp. 31-53, or in Petersen and von Luschan, *Reisen in Lykien*, Wien, 1889, p. 198), has thus stated the question which this fact provokes: Are we to regard these scattered sects, Tachtadji, Yezidi, Ansariyeh, and so forth, as more or less degenerate offshoots of Shiitic Islām or as stray relics of a very ancient heathen culture? The influence of Islām is very strong in some cases, but it is none the less possible that in other cases these sectaries have preserved, as faithfully as the Parsees or the Brahmans, the old natural religion of the land; they may be islands of a submerged continent. Professor von Luschan treats the Tachtadji from the physical or anatomical side. My own material is too small to permit me to follow him far in this field; such as it is, it will be found in the appendix. The evidence which von Luschan collected, however, enabled him to connect anatomically the Tachtadji with the Lykian Bektash; it would be reasonable, therefore, to suppose that the Kappadokian Bektash may also fall into the same circle, and my own notes give some colour to this. It seems worth while, then, to pursue the subject in another sphere, the psychological, and ask whether we find here fragments or more of the culture which, as we know, prevailed over this area before the invasion of any of the great world-religions.

In both the villages I have described the tomb of a saint or great man fills by far the largest place in the sentiments of the people; the tomb and not the mosque is the dominating centre of attraction. As a rule the Anatolians here and elsewhere, beyond a general superstitious respect for the cemetery which varies very much in different parts, bestow no tender solicitude upon the dead, and the appearance of a village graveyard is miserable beyond words. This neglect is a good foil to the care taken of the *turbah*; it is an object of pride and veneration, and the villagers tell you stories of the cures wrought there and the sanctity of the deceased. The occupant of one of these tombs receives no doubt, to some extent, the same honour that is paid to a saint, Christian or Muslim, in the Mediterranean area (see Lane, *Modern Egyptians*, c. x.), but there is one important difference, made especially clear by the practice in the two villages I visited. The service and cult of the saint is in the hands of people who claim to be lineally descended from him, and often profess to have some esoteric truths,

which they transmit only to their children; this it is which links them to the pre-Christian worship of heroes. Very often one comes to a deserted *turbeh*, where all inquiries as to its occupant prove fruitless; this simply means that the family which claimed descent from the saint, however fictitiously, is extinct, and no one has stepped into their place. In classical lands we can point to an exact parallel: heroes held the same position, and those who carried on their worship were obliged to discover some connexion with them either by blood or by adoption. In Greece one hears of many shrines where the name of the hero was forgotten and a nameless *ἥρως* worshipped, and the cult reaches back to a time before the Dorian invasion. The choice of a name famous in legendary history like that of Haidar or David is analogous to the many *heroa* named after Midas or Herakles. In fact, the one non-Hellenic trait lies in the spiritual pre-eminence of the modern hero and the possession of esoteric doctrines connected with this, and these are older than El Islâm (see the passage from Eusebios quoted below).

Connected with the *turbeh* at Haidar-es-Sultan we found the sacred well and the reputation of the saint as healer and prophet. The combination is almost necessary for the permanence of the cult, for in a place where ancestor worship and the worship of the vulgar dead has long disappeared, the hero can only maintain his dues by giving the worshipper a practical return for his loyalty. The form of this return is so common everywhere that I need not collect parallels. Holy wells are as much venerated to-day as in antiquity among both Christians and Muslims; the triple combination of hero, healer, and prophetess is much rarer, but we have an exact analogy at Delphi now that we know that the worship of Apollo was engrafted on an earlier cult of the dead.

It is not necessary here to repeat the arguments which have been often urged to support the theory of a single homogeneous culture connecting Greece with Asia Minor; suffice it to notice that the core of a living Anatolian religion is the old worship of heroes.

Second only in importance to their religion must be a people's marriage customs. Last summer I was told by a Christian that it was generally reported of the Bektash that they made incestuous marriages, fathers with daughters, and brothers with sisters. On such a delicate subject it was difficult for a traveller to make full inquiries, and nothing I could learn supported the charge at all. The Bektash averred that they married Bektash only, were monogamous, and admitted no divorce, and even my informant did not pretend to believe the canard. But Professor von Luschan heard of two certain unions of this kind among the Lykian Tachtadji, and the permanence of the scandal is a striking case of survival. In Karia we know such marriages were common, and Greek ideas of "prohibited degrees" were profoundly different from the Roman; in Greece under certain circumstances a man was practically obliged to marry his niece, but in Rome by so doing the Emperor Claudius outraged the public sense of decency. And in Kappadokia itself we have an interesting witness in the person of Basil. Epiphanios, a Cypriot bishop who was compiling a massive work on heresies,

questioned him about some people called the Magousaioi, and Basil replies thus: "The Magousaioi, as you were good enough to point out to me in your other letter, are here in considerable numbers, scattered all over the country, settlers having been long ago introduced into these parts from Babylon. Their manners are peculiar, as they do not mix with other men. It is quite impossible to converse with them, inasmuch as they have been made the prey of the devil to do his will. They have no books, no instructors in doctrine. They are brought up in senseless institutions, piety being handed down from father to son. In addition to the characteristics which are open to general observation, they object to the slaying of animals as defilement, and they cause the animals they want for their own use to be slaughtered by other people. They are wild after illicit marriages; they consider fire divine, and so on. No one hitherto has told me any fables about the descent of the Magi from Abraham; they name a certain Zarnuas as the founder of their race" (*Letter* 258, § 4). Epiphanius (*Expos. Fid.*, p. 1094) adds nothing material to this, but Eusebios is more explicit, and I will quote him also in full (*Prof. Evangel.*, vi, p. 275). "Among the Persians it was the custom to marry daughters and sisters and mothers, and not only did they make these impious marriages in their own country, but those who have left Persia also, the so-called Magousaioi, practise the same iniquity, handing down in succession (κατὰ διαδοχὴν) the same laws and customs to their children. There are many of them at the present in Media and Egypt and Phrygia and Galatia." In the time of Eusebios Galatia included the villages with which we are concerned, and in the face of practices such as we have mentioned, practices which, however common at one period, must have been bitterly opposed by every religious teacher, Christian or Muslim (see Burton, *Arabian Nights*, I, p. 110), since the time of Basil, we cannot refuse to recognise an unbroken continuity between the Magousaioi of the past and the modern Kizilbash. Only the open practice of their faith—the worship of fire and so forth—has through fear of persecution fallen into abeyance, and the lights which I saw in the *turbeh* at Hassan-dede may be a survival of this (see also *Quarterly Review*, 1897, 2, p. 425, and compare Bent's account of the "Ansairee," *Cornhill Magazine*, 1891, New Series, vol. xvi, p. 68, foll.). A few notes may be added on these two passages which will bring out the whole point in clearer relief. The phraseology of Basil is curiously like the terms still in use among the Turks. "They have been made the prey of the devil"—the Turk calls them devil worshippers in many places, Layard's account of the Yezidi or Luschan's account of the Tachtadji will show with what justification. "They have no books"—this is rightly explained by the writer in the *Quarterly* to refer to religious books and is exactly parallel to the modern Turkish description of them as people "without a book," i.e., Koran or Bible. "The senseless institutions" are probably rites of initiation and esoteric doctrines of manifold incarnations, eschatological matter, and so forth (see Bent, *loc. cit.*, and other travellers, e.g., Van Lennep, *Travels in Asia Minor*, 1, p. 293, foll.); with Basil's epithet few who have read about the Druses and Ansariyeh will care to quarrel. Zarnuas I suppose to be one of the many corruptions of

Zarathustra's name. As regards the name Magousaioi, those who like to find a geographical origin for every sect will be able to point to a town in Arabia named Magousa (Pliny, *N. H.*, vi, 32; Strabo, pp. 118, 619, 780): the word is used in modern Arabic = fire-worshippers. Of superstitions connected with animals I could find no trace, except that they, like so many others, regard the hare, which they call "Ali's cat," saying that he petted it as others keep pet cats, with special respect. Nor had they, like the Tachtadji, any special fear of particular colours.

Two other survivals from the pre-Islamic period may next be mentioned, compelling us to the same conclusion. One of the first things you hear from a Turk about them is that they drink wine and do not fast, and the Sheikh at Haidar-es-Sultan gave us a vivid picture of the joys of winter, when it was cold outside and there was nothing to do but light a fire and tiddle by it from morning till night. In their drinking, which is otherwise orthodox enough, they have one peculiar custom: however small the cup out of which they drink may be, they hold it with both hands. The dervishes at Hadji Bektash do the same, as I was told on good authority, and Luschan reports it also of the Tachtadji, calling the practice "*völlig unklar in seiner Bedeutung*." But some light is thrown on the subject by a sentence in Ainsworth's *Travels and Researches* (1842, vol. ii, p. 188). Of the Yezidi he says they "speak often of wine as the blood of Christ, and hold the cup with both hands, after the sacramental manner of the East, when drinking it." It seems to me highly improbable that the Yezidi or the Anatolian Allevi have got the custom from the Christians and extended it to common use; far more likely that the latter should have consecrated and confined to a special rite a custom once universal in the East. One is tempted to ask whether such a custom does not underlie the form of the classical drinking cup, the *kylix*, which invariably has two handles. The large eyes of Ionian origin which are the commonest decorations of these *kylikes* in the sixth and fifth centuries B.C., and which were no doubt intended as *apotropaia* to avert the evil eye, seem indeed to point to a phase when a religious or superstitious significance was attached to every act of drinking.

Again, Professor von Luschan mentions the extraordinary ornaments which he saw in the ears of Lykian Bektash dervishes; Purchas similarly describes huge earrings as being worn by most of the dervish orders in the sixteenth century. In classical literature and in the Bible there are frequent references to the earring as the mark of the Oriental, and the monuments, Assyrian and "Hittite," tell the same tale. Juvenal, for instance, writes, "*Natus ad Euphratem molles quod in aure fenestræ arguerint*," and I could apply the term "window" without much exaggeration to the huge hole which I saw bored in the ear of the dervish from Hadji Bektash whom I met in Kirshehr.

This evidence proves that we have in these villages stumbled upon the certain fragments of a pre-Islamic civilisation. In the previous section I tried to fix the position of our villagers during the last few centuries in which the country has been under Muslim rule; we can now carry the process farther back and sketch in outline their earlier development.

Officially they rank as heretical Mussulmans; their traditions bring some of them at least from Khorassan. These facts must not be blinked; on the contrary I am ready to accept both, and regard as probable on all grounds (*see appendix*) a fusion between the earlier population and some of the first Muslim immigrants, who were driven by Mongol pressure from their seats in Bokhara and Samarcand and elsewhere. But neither must the bearing of certain other facts be blinked. The descent of these refugees from Khorassan is but a single wave in a rhythmic stream which has been flowing for thousands and thousands of years. Even in neolithic times Kappadokia appears to have turned to the east rather than the west; the form and material of the stone implements found there point to Armenia and inner Asia. In the Hellenistic age Hellenism, as then understood, made no progress against the intense nationalism of the native states, which were ruled by kings who prided themselves on descent from one of the Seven Persians. Droysen describes the country as "*mit iranischen Wesen erfüllt* (iii, p. 84). In the Christian period Basil and Eusebios repeat and amplify the witness of Strabo. Already, therefore, before the time of Alexander the inhabitants of Kappadokia had come under oriental influence and developed a religious theory of their own which made them impervious to Greek and Christian missionaries; and this religious theory the brief notices I have quoted enable us to identify with the practice of the living Kizilbash. Not only have we thereby obtained a new authority from which to reconstruct the past, but the mere fact of its permanence throws fresh light on the intervening centuries, on the spread and character of Christianity in Kappadokia, and the tolerance and assimilative powers of the Seljuk Turks, and the true inwardness of several anti-Sunnite movements which owed their strength to an alliance of new dissenters with old pagans. And yet even this "Persian" culture was only a compromise and a pouring of new wine into old bottles. Behind it we see traces of a simpler, less specialised civilisation which once stretched at least from the Persian mountains to the mainland of Greece. This lay at the foundations both of the Persian system and also of Hellenism, and by removing the upper strata we can recognise in the *temenos* at Haidar-es-Sultan a living embodiment of the humble origins of Delphi, before the Dorian Apollo's advent raised it to a pan-Hellenic significance. Archaeologists who have busied themselves in distinguishing the various layers accumulated on an ancient site will, I hope, acknowledge in this method a rough comment on their own successive periods, and one that can, alas, be only rarely made.

APPENDIX.

For reasons which have been already mentioned, I was unable to take as many measurements as I should have liked. In all I measured fifteen, five at Haidar-es-Sultan and ten at Hassan-dede, but one of the latter (No. 15) had such an unsymmetrical and abnormal head as to be quite worthless; I only measured him because he was a rich man whom I dared not offend. The Sheikh at Haidar was the only one who refused to be either measured or photographed, and this "because he was a holy man"; others, including his own son, he compelled to submit to my tender mercies.

TABLE I.

Number.	Name.	Age.	Height.	Length of head.	Breadth of head.	Vertex to ear tragus.	Smallest breadth of forehead.	Bizygomatic breadth of face.	Nasion to chin.	Length of nose.	Breadth of nose.	Distance between eyes.	Cephalic index.	Length by height index.	Facial index.
1	Mehmed	58	166.7	176	161	137	112	152	139	64	38	33	91.4	77.8	91.4
2	Haidar Effendi	45	170.9	179	161	123	111	139	129	61	36	30	89.9	68.7	92.8
3	Moussa	21	171.4	178	157	128	110	141	131	56	34	—	88.2	71.9	92.9
4	Emrullah Effendi	50	155.8	187	164	132	107	147	133	62	35	32	87.7	70.5	90.4
5	Mehnuish	35	163.5	175	153	127	103	134	131	58	34	—	87.4	72.5	97.7
6	Husein	56	—	183	159	137	114	146	135	63	38	35	86.8	74.8	92.4
7	Saduk	27	165.7	189	163	133	110	146	125	54	35	—	86.2	70.3	85.6
8	Bairam	38	162.3	181	153	130	112	138	126	51	35	33	84.5	71.8	88.4
9	Abbas	60	163.3	185	156	134	107	145	134	57	35	30	84.3	72.4	92.4
10	Veli Effendi	65	170.8	189	159	131	114	143	131	55	37	35	84.1	69.3	91.6
11	Mehmed	40	167.8	187	157	128	107	141	133	55	37	—	83.9	68.4	94.3
12	Djafir	54	160.5	179	150	138	110	141	124	59	34	34	83.7	77.0	87.9
13	Moualou	20	174.4	188	156	139	112	139	132	57	39	—	83.9	73.9	94.9
14	Mustapha	35	158.1	194	160	125	117	151	151	63	35	36	82.4	64.4	99.9
15	Suleiman Effendi	38	175.4	191	146	140	104	145	123	58	39	33	76.4	73.3	84.8

NOTES.—Of these, Nos. 3, 5, 7, 11, 13 were taken at Haidar-es-Sultan; Moussa (No. 3) was a younger son of the Sheikh. The rest are all natives of Hassan-dede, Nos. 1, 6, 8 being described simply as Bektash, the remaining seven (Nos. 2, 4, 9, 10, 12, 14, 15) being Salah-ed-din. Veli Effendi (No. 10) was the Sheikh of the village and therefore head of this family. For the portraits of 1, 9, 10, 12, see Plates XXXVI, XXXVII, XXXVIII.

Three had blue eyes, and all dark brown hair or grey.

Abbas (No. 9) had no face hair whatever.

Omitting Suleiman Effendi, we have, therefore, measurements of fourteen Kappadokian Bektash to compare immediately with the measurements taken by von Luschan in Lykia, that is, with thirteen Tachtadji and forty Lykian Bektash. This can be done most simply by arranging the three groups in tabular form according to the three most important indices.

TABLE II.

Comparison of cephalic indices.

Indices.	14 Kappadokian Bektash.	13 Tachtadji.	40 Lykian Bektash.
80 — 85	7	5	6
85.1 — 90	6	7	34
90.1 — —	1	1	0

TABLE III.

Comparison of length by height indices.

Indices.	14 Kappadokian Bektash.	13 Tachtadji.	40 Lykian Bektash.
— — 70	4	0	0
70.1 — 75	8	3	10
75.1 — —	10	10	30

TABLE IV.

Comparison of facial indices.

Indices.	14 Kappadokian Bektash.	13 Tachtadji.	40 Lykian Bektash.
— — 90	3	10	37
90.1 — 95	9	1	2
95.1 — —	2	2	1

If we looked at the cephalic index only it would be easy to group all these together as an entirely homogeneous brachycephalic race, but the other indices speedily dispel this pleasing illusion. The Kappadokian villagers present startling differences even within the limits of a single family. Looking, however, as is only right, at the individuals here measured, two at least, Mehmed and Djaffir (Nos. 1 and 12), stand out as evidently akin to the Lykian group. Through Professor von Luschan's kindness I was able to throw upon the screen photographs of a Tachtadji and a Syrian Fellah (Ansariyeh) and the likeness between these and the two former convinced all, I think, of their mutual connexion. They have the same broad, high skull, so straight behind that some have supposed its form to be due to artificial deformation; for this latter hypothesis, however, resuscitated by W. Z. Ripley, there is not a shadow of evidence. The short-headed Armenian child lies in a cradle of the same type as the long-headed Anatolian Greek, and the shape of the former's head is that of *Homo Alpinus* wherever he be found. The antiquity of this type in Anatolia is proved partly by the evidence of Hittite monuments, partly by various ancient skulls that have been found in North Syria (Sendjirli), Lykia, Phrygia (Boseyuk), and Assos, and is further corroborated by its latter-day extension.¹

¹ See the references given by Mr. Duckworth in *Journ. Anthropol. Inst.* (N.S.) II, p. 145, foll., and to these add Virchow, *Ueber alte Schädel von Aoros und Cypern*, Berlin, 1884, and *Verhandlungen der Berliner anthropologischen Gesellschaft*, 1896, p. 123.

The differences between the Kappadokians and the Lykians may be due to immigrations during the Seljukid period or perhaps earlier, for even in the most archaic times of which we are likely to find traces we shall probably find various types existing side by side.

DISCUSSION.

Sir C. WILSON: I have listened with much pleasure to Mr. Crowfoot's interesting paper. My experiences amongst the Kizilbash agree generally with what he has told us. They are disliked by the Sunni Moslems, possibly because they will not intermarry with them; and are accused of all kinds of obscene conduct without, as far as I could ascertain, the slightest foundation. They seemed to me a cleanly, inoffensive people, friendly to strangers, and ready, if no Sunni were present, to talk freely upon all subjects but their religion. The women are allowed much more freedom than amongst Sunni Moslems, and, except in presence of a Sunni, do not veil. Their customs differ in various localities, and some of them have certainly come down from the Christian period during which Kappadokia was Hellenised though, perhaps, not so completely as has generally been supposed.

I have never heard the Kizilbash called Bektash, and was not aware that they used that name amongst themselves. The names, in their original application, are so wide apart, that I do not understand how they have come to be applied to one people. I can only suppose that the villages visited by Mr. Crowfoot were on land which formerly belonged to the Bektash Dervishes, and that the villagers had been protected by the Bektashes when the fraternity was powerful.

The term Kizilbash ("red-head") came into use during the rise of the Safavi dynasty, which reigned over Persia for more than two hundred years (1499-1722). It was used to distinguish the Persianised Turks, or Turkish Shi'as, who formed the ruling class and wore red caps, from their enemies the Sunni Turks and Tatars to the East, who wore green felt caps and were called "Yefhil-bash" ("green-head"). When the term was first used in Asia Minor I do not know, but suppose it must have been after the campaign of Selim I in Persia (1514), when Shi'a Turks from Persia were settled in Asia Minor, apparently under the belief that they would eventually become Sunnis.

Hajji Bektash was a native of Nishapur, who seems to have found his way to Asia Minor about the time when Orkhan was conducting his early campaigns against the Byzantines (1326-46). He is known to have taken a leading part in the capture of Mudania (1351) and appears to have been more of a fighting dervish than of a philosophic devotee such as the celebrated Mevlana of Konia. Hajji Bektash gave the Janissaries their name, *Yeni-cheri*, and their standard; and his followers were closely connected with the Janissaries until their suppression (1826). At that time the Bektashes held extensive lands throughout the Empire, and had become a great power. Their lands were nearly all confiscated, and their power completely broken by persecution. The exemption of the monastery of Hajji Bektash from the general confiscation seems to have been due to its having been on land granted to the founder for military service.

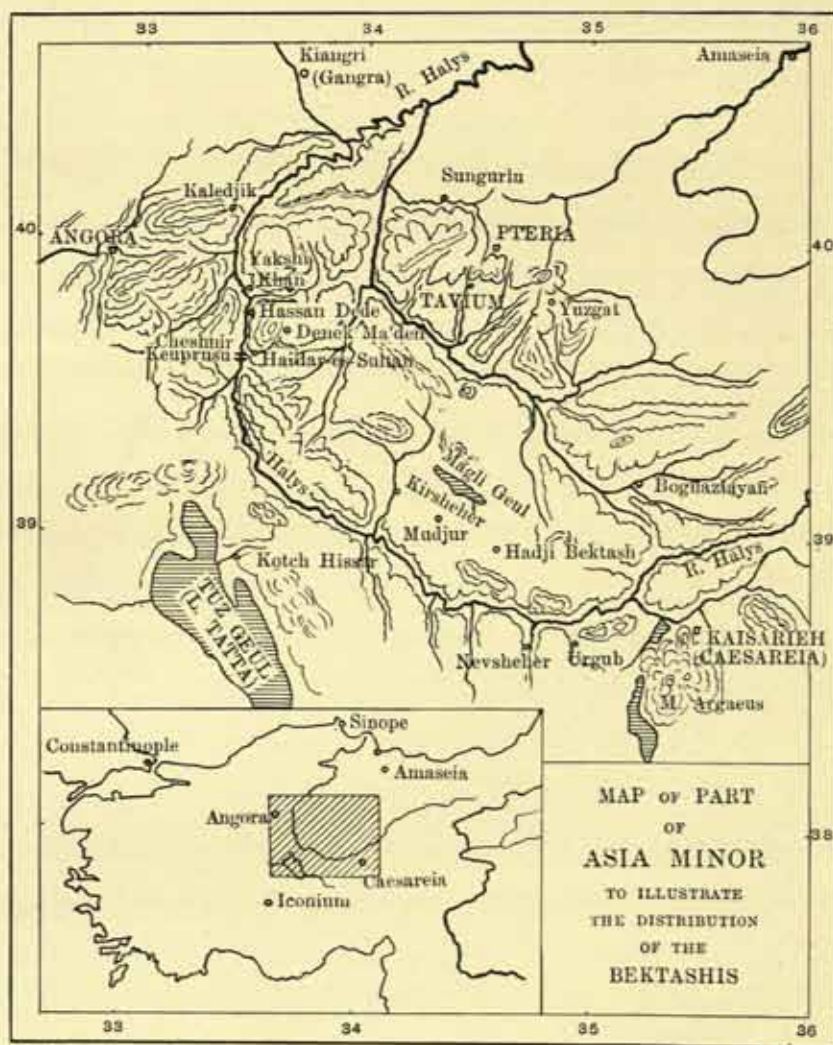
There is no more interesting study than that of the original population of Asia Minor, to which the name Proto-Armenian has been supplied. In many localities the early types appear to be well-marked, and if the Society desires to

continue the class of research which Mr. Crowfoot has so successfully conducted, I would suggest three districts in which I think interesting and important results would be obtained. (1) In the compact Kizilbash population of the Livas Vilâyet, especially in the Amasia Sanjok. (2) In the volcanic district north of Nigdeh, especially amongst the mixed Christian and Moslem population of the underground villages which I have described in Murray's *Handbook* (p. 168 ff). (3) Amongst the large Kizilbash population of the wild mountain district of Dersim which lies between Erzincan and Kharpût. No great road has ever traversed this district, and it has always been a harbour of refuge for tribes driven into the mountains by invaders. The people are friendly, and the country contains fine scenery. I should wish to add my testimony to the importance of Mr. Crowfoot's work and express the hope that it may be continued.

MR. G. L. GOMME: I cannot pretend to any knowledge of the subject by personal knowledge of the people, but perhaps I may venture to emphasise the importance of local ethnographical details such as the author has given us. When one gets physical types, and survival of customs grouped together in local studies, we are likely to get evidence of the most important nature. I was much struck with the priestess element in the well ritual, and was inclined to ask the author whether it was accompanied by any evidence of women of superior influence in the house. But Sir Charles Wilson partly answered this by an observation he made upon this point. I would however ask the author what he exactly meant by the term hamlet. Are these divisions tribal, or upon what basis are they made? He did not mention anything equivalent in the second village, and I should like to know what the term exactly implies.

DR. GARSON: The form of head which is shown by the photographs of these natives is a common one in cases where the skull is short, that is to say, brachycephalic people. The author did not mention the mean cephalic index of these natives, but they appear to me to be highly brachycephalic. There is no deformity present as far as I can judge by the pictures, the straight and flat appearance of the back of the head is due to the form of the skull and cannot be attributed to any form of cradle in which as children they have been laid.

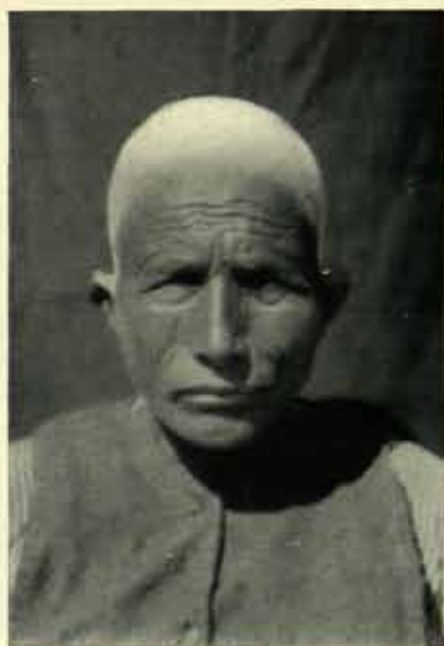
SIR T. HOLDICH: In the course of his most interesting paper the lecturer referred to Khorassan as the probable original habitat of the Kizilbash. It may therefore be of some interest to point out that there are many Kizilbashis still resident in Khorassan—not the Khorassan of modern Persia, but the Khorassan of the Durani Empire (a century and a half ago) which included Afghanistan, Baluchistan and a part of the Punjab. This is Khorassan as it is probably known to the Kizilbash of Armenia now. The largest colony of these people is to be found at Kabul, where they are a peaceable trading community, Aryan in type and feature, merchants (mostly) by profession, Shiahis by faith, and invariably favourable (as are the Shiahis of all frontier communities) to England and British interests. The old woman who endeavoured to extract truth from the well for Mr. Crowfoot's benefit might answer, in his description, to any old Kizilbash woman of Kabul. There are (or were) a few Kizilbashis in the ranks of the Indian Army. I once possessed a Kizilbash orderly, drawn from the native cavalry, who was a specially smart and capable soldier. There can, I think, be little doubt about the connexion between the Kizilbash of Afghanistan and the Kizilbash of Kappadokia.



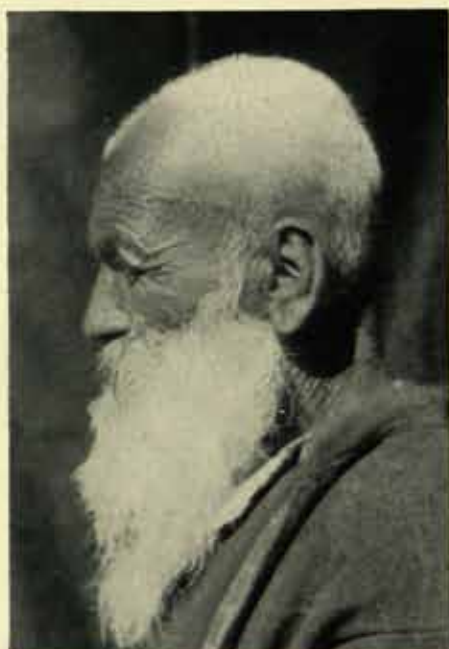
J. G. C. Anderson *det.*



MEHMED (I).



ABBAS (9).



VELI EFFENDI (10).

THE SHEIKH OF HASSAN-DEDE.



DJAFFIR (12).

BEKTASHI PORTRAITS. FULL FACE AND PROFILE.

ASIA.

Cyprus: Bibliography.

Cobham.

An Attempt at a Bibliography of Cyprus. By Claude Delaval Cobham, B.C.L., M.A., M.R.A.S., Commissioner of Larnaca. 4th Edition. Nicosia, 1900. 8vo. pp. 55. **62**

Mr. Cobham is to be congratulated both on the necessity which has arisen for a fourth edition of this invaluable little book and on the great pains which he has taken to bring it thoroughly up to date. How greatly the literature of the subject has increased in recent years is shown by the fact that whereas the third edition of the *Bibliography* which appeared in 1894 contained only 497 titles, this of 1900 contains no less than 728. The general bibliography, which occupies 38 pages, is followed by special sections on the numismatics, epigraphy and language, consular reports, newspapers, cartography, and parliamentary papers of the island; and a full chronicle of contributions to the "Cesnola Controversy."

J. L. M.

India: Rajputana States.

Adams.

The Western Rajputana States, a Medico-Topographical and General Account of Marwar, Sirohi, and Jaisalmer, by Lieut.-Colonel Archibald Adams, I.M.S., M.D. **63**
2nd Edition. London: Junior Army and Navy Stores, 1901. 8vo. pp. 455. Price 10s. 6d. Presented by the Author.

The appearance of this book, the work of a medical officer of the Indian Service, who passed through a long period of work in Western Rajputana, was soon followed, we regret to say, by the announcement of the author's death. The primary object of the book seems to have been to discuss the climatic conditions of an out-of-the-way corner of the Indian Empire, and to give some account of his professional work amidst a most interesting people. As it progressed the book developed into a general treatise on the country and its people, including history, geography, natural productions, and social economy. Such a scheme needed qualifications which the writer obviously did not possess. The student of the history and antiquities of Rajputana will be wise in relying on the classical *Annals* of Colonel Tod, for matters social and economic on the *Rajputana Gazetteer* and the Administration and Census Reports, while Jerdon's accounts of the birds and mammals, which are the authorities used by the author, have been superseded by the series of volumes issued under the editorship of Mr. Blandford. Unfortunately, Dr. Adams seems to have had little taste for anthropology, and he lost a unique opportunity of collecting skull measurements and other similar facts, a work which his professional knowledge would have qualified him to undertake.

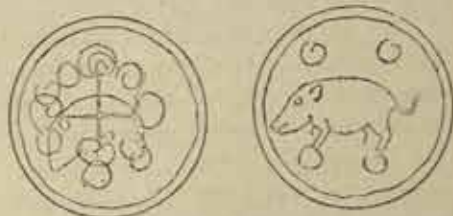
The book, however, forms a useful collection of facts and seems trustworthy so far as it goes, but to the student of man it will supply little that is novel and interesting, while space has been wasted in recording imperfect notes of superstitions and popular beliefs which are already accessible in other books. The best feature of the volume is the excellent collection of photographs of people, buildings, and scenery with which the volume is lavishly supplied.

W. CROOK.

Ling Roth.

Burma :

64 *Note on a Hkounng behl set.* Communicated by H. Ling Roth.
 In that excellent work *The Burman*, the author, Shway Yeo, states on p. 43 of the 2nd Edition, "These *hkounng behl set* are charmed or consecrated objects let into the flesh under the skin. They are of various kinds. Some are gold, silver or lead; others curious pebbles, pieces of tortoise shell, or bits of horn, all of them with incantations of mystic character written on them. Many famed dacoits have long rows and curves of them over the chest, showing in little knobs through the skin. When they get into English prisons an energetic English jailor has been known to cut them out, lest they should be pieces of gold or silver, or perhaps precious stones with which the turnkeys might be bribed. The usual result is to break the robber's spirit. Once the continuity is interrupted the consecration is gone."



On reading the above passage I wrote to the Burmese Government asking for a specimen of such a talisman, to which request I obtained a very courteous reply from the Hon. C. G. Bayne, Chief Secretary to the Government of Burma, enclosing three specimens, a disc and two pins, together with the following notes:—"These are inserted in the biceps and forearm usually. The needles are simply pushed in, while to insert the disc the skin is pinched up with the thumb and forefinger and punched through with a bit of thick brass wire. The presence of the inserted objects can almost always be easily distinguished and the objects themselves felt, the skin rising up in small ridges in the case of needles and getting discoloured in that of discs. As a rule no injury is caused by the objects miscarrying. If the operation is unsuccessful, the objects drop out and a small scar is left on the skin."

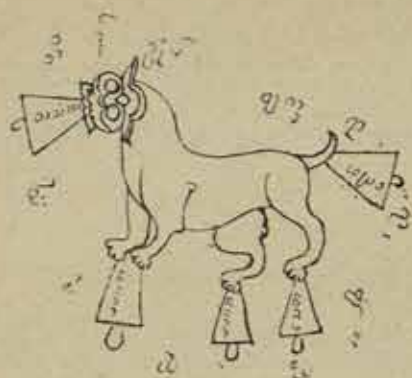
The disc is about $9\frac{1}{2}$ mm. diameter and $\frac{1}{4}$ mm. thick. On the obverse is the representation of a pig with four roughly engraved circles which are probably



intended for mystic characters and the reverse appears to represent cabalistic designs but not a horoscope. The needles are 11 mm. and 10 mm. long respectively, blunt at both ends and slightly taper. The three articles are now in the British Museum.

For comparison with the obverse of the disc I append four designs which are

charms tattooed on the thighs; specially prepared pigments being used in the operation. These designs were likewise sent me by Mr. Bayne.



The late Dr. John Anderson refers to the custom at Bhamo, as follows:—

"The *tsitkay-nekandaw* (deputy) afforded a curious illustration of a custom mentioned by Colonel Yule (*Marco Polo*, vol. ii, 1875, p. 244). The upper part of his cheeks was disfigured by large swellings, caused by the insertion under the skin of lumps of gold, to act as charms to procure invulnerability. Yule mentions the case of a Burmese convict executed at the Andaman Islands, under whose skin gold and silver coins were found. The stones referred to in the text of Marco Polo, as well as the substances mentioned in the note by his learned editor, do not appear to have been jewels. The custom prevails among Yunnan muleteers of concealing precious stones under the skin of the chest and neck, a slit being made, through which the jewel is forced. This, however, is not to preserve the owners' lives, but their portable wealth. While at Mandalay, I examined some men just arrived from Yung-chang, and found individuals with as many as fifteen coins and jewels thus concealed, as a precaution against the robbers who might literally strip them to their skin, without discovering the hidden treasure. But our Burmese official regarded his disfiguring gold as a certain charm against danger."—*Mandalay to Momiën*, London, 1876, pp. 409-10.

Assam: Archæology.

Gurdon.

Aśwakrāntā, near Gauhati. By Capt. P. R. Gurdon, I.S.C. From the *Journ. R. Asiatic Society*, Jan. 1900, pp. 25-7, two plates. Presented by the Author.

65

This interesting sanctuary lies on the north side of the Brahmaputra, a little to the west of the island of Umananda, not far from the old town of Pragjotishpur or Gauhati. Its name (*Aśwa*, "horse"; *krāntā*, "passed by") marks it as a point on the route of Krishna when he carried off his bride Rukminī; and the "footprints of Krishna's horses" are shown, in holes in the rock near the shrine.

The paper describes and figures (a) the Garurasan or stone throne found by Capt. Gurdon in a small ruined temple at the foot of the *Aśwakrāntā* hill, with kneeling bird-headed figures (the Garuda-birds of Vishnu) at the corners; (b) a fine relief from the temple of Vishnu, which depicts the sleep of Vishnu on the snake Ananta (*Srimat Bhagavat*, V, 25). The relief is still an object of reverence, but since the ruin of the temple by the earthquake of 1897, it is exposed to damage, and neglect. It would be worthy of the Government of Assam, which has shown in many ways so enlightened a regard for native customs and observances, to take the necessary steps to preserve this interesting monument.

J. L. M.

Assam: Lushai.

Shakespeare.

66 *Note on some Tribal and Family Names employed in speaking of the Inhabitants of the Lushai Hills.* By Major John Shakespeare, C.I.E., D.S.O., I.S.C., Superintendent of the Lushai Hills. Communicated by Dr. G. A. Grierson, C.I.E., I.C.S. From the *Journal of the Asiatic Society of Bengal*, Vol. LXVII, 1898, Part III, pp. 116-7. 8vo. Presented by the Author.

Lushai is our way of spelling the word; the proper way to spell the word, so as to represent the actual sound, as spoken by the people, is Lushēi. The term includes a number of families, among which are the following: Sailo, Thangloa, Rivung, Jadeng, Rokum, Pallian, Pachua, Haonar, Chenkual, Choahang, Changte, Chongte, Hualgno, Hualhang. (The Hualgno are the tribe spoken of by the Chin Hills officers as Whenoh.) There are probably other families that claim to be true Lushēis. The term Dulien is also applied to these families, and the language spoken by them all is known as Lushēi or Dulien. These Lushēis have conquered and broken up all other communities which formerly had separate villages in the hills. So completely has this been done that when we occupied the hills nearly every village was ruled by a chief of one of the following families, viz., Sailo, Thangloa, Pallian. Of these the Sailo were far the most numerous; in fact, to-day the number of houses in villages not ruled by Sailos is insignificant. The Lushēis having conquered the other clans and absorbed them to a great extent, it is natural that the Lushēi language has come to be the language of by far the greater number of people in the hills west of the Tyao-Koladyne line.

The people who inhabit this area and who are not Lushēis may be divided into (a) tribes conquered and absorbed by the Lushēis. Among these are Ralte, Hmar, Paithe, Vanchia, Kolhring, Nennte, Powtu, and innumerable others. Most of these if they ever had a separate language have lost it now and speak only Lushēi. The Hmar and the Ralte are still numerous and keep together, and thus their dialects have survived. All these people are indistinguishable from Lushēis in their appearance and only differ in a few of their customs and methods of sacrificing.

(b) Immigrants from the Chin Hills, who have come across the Tyao-Koladyne line and seized land by force of arms. Among these are the Jahow, more properly Jahao, in the northern hills and the Lakhers and other immigrants from round Haka in the southern hills. These people speak their own languages, and if their progress had not been arrested by us they would have made an effort to drive out the Lushēis. Their customs and languages differ from those of the Lushēis in many particulars.

(c) The Fanai are a very small family. The first Fanai to be considered a chief was the grandfather of the present Fanai chiefs, of whom there only seven, who rule some 800 houses. They speak Lushēi.

It must be clearly understood that there are no *tribes* as we understand the term. In former official correspondence the Sylloo tribe and the Thangloa tribe are spoken of, and it was thought that all people living in these communities were Sylcos (Sailos) or Thangloas, whereas Sailo, Thangloa, etc., are really only the names of individual families to which the chiefs belonged, the villages ruled by these chiefs being inhabited by representatives of many different families. Major Shakespeare has succeeded in tracing out the pedigree of the Sailo, who are also called Thangur, through thirteen generations back to Thangurra, the founder of the family and grandfather of Sailoa, whence the family took their name.

J. L. M.

Assam : Lushai Language.**Shakespear.**

Mizo leh vai thon thu (folk tales). pp. 32. Price one rupee (1s. 4d.). 1898.
Mizo zir tir bu (grammar, etc.). pp. 26. Price two annas. 1899. Printed **67**
 at the Assam Secretariate Printing Office. Svo. (10×7). Presented respectively by
 Major J. Shakespear, C.I.E., D.S.O., I.S.C., and by the Secretary to the Chief
 Commissioner of Assam.

The pacification of the Lushai Hills only commenced in 1888, and before that time the Lushais, of whom very little was known, were put down as untamable savages whose only object in life was head-hunting. Major Shakespear, however, to whom the Anthropological Institute is indebted for information about the works now under review, reports that "on closer acquaintance we have found them the very opposite. They have settled down in a wonderful way, and are now eager to learn and to qualify themselves for employment under Government."

Education was first introduced among the Lushais by Messrs. Savage and Lorrain, of the Arthington Pioneer Mission, who lived in Aijal from 1894 to 1897, and reduced the language to writing (using the English alphabet), and compiled a grammar and dictionary, which were printed by the Assam Secretariate Press in 1898. They also made translations of the Gospels of St. Luke and St. John and the Acts of the Apostles, which were printed by the British and Foreign Bible Society in 1898. Besides these valuable literary works, they taught all Lushais who came to them, and gave a great impetus to education in the district. Messrs. Savage and Lorrain left Aijal, universally regretted, in 1897, leaving the Welsh Mission to carry on the work which they had so well begun. Before their departure, however, Major Shakespear got them to assist him with a small First Lushai Reader, which was printed, like the grammar and dictionary, by the Assam Secretariate Press; and also, as the want of something to read was badly felt, got a Lushai clerk in his office, named Suaka, to collect a number of Lushai fables, which are also printed by the Secretariate Press. They are, with three exceptions, pure Lushai folklore legends.

To meet the want of a more advanced reader, Major Shakespear got Suaka to collaborate with Messrs. Jones and Rowlands, of the Welsh Mission, in the production of the book *Mizo zir tir bu*, of which a copy has been kindly presented by the Secretary to the Chief Commissioner of Assam to the Library of the Anthropological Institute. It contains the modified Roman alphabet which is employed (a, aw, b, ch, d, e, f, g, ng, h, i, j, k, l, m, n, o, p, r, s, t, u, v, z), exercises in pronunciation of syllables and short sentences, a number of short paragraphs and articles on various subjects, and of translations of portions of the Bible, such as the "Ten Commandments," the "Parable of Dives and Lazarus," "St. Paul's Speech at Athens"; and concludes with rules of punctuation, calendar, weights and measures, multiplication table, and simple arithmetical matters.

J. L. M.

Japan.**Schmeltz.**

Rijk's Ethnographisch Museum. Tentoonstelling van Japansche Kunst. Door **68**
 Dr. J. D. E. Schmeltz, Directeur. Haarlem, Kleinmann, 1899. Svo. pp. 70,
 with 4 phototype plates. Presented by the Author.

This is a brief visitor's guide to the Japanese Section of the Royal Ethnographical Museum of Holland at Leiden; and includes a brief history of the collection and a concise description of each exhibit, with references to previous publications. J. L. M.

Japan: Religion.

Aston.

69 *The Japanese Gohei and the Ainu Inao.* Communicated by W. G. Aston to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 7th, 1900. [To be published in full in this Journal.]

This paper illustrates a principle in the history of religion by which the object, which is at first simply an offering, has a tendency to become conceived of as the embodiment of the God, or even as a distinct and independent Deity.

In ancient Japan, the offerings to the gods were of the most varied description. Among them were included hemp and bark-fibre, together with cloth made from these materials. In later times there was substituted a small quantity of paper, made of the same bark-fibre, and attached to a wand in the form known to us as *gohei*. With the change of form, the original character of the *gohei* as offerings was forgotten. They were looked upon as receptacles or embodiments of the God, and honour was paid to them accordingly. At festivals, the God descended with the *gohei*, on a certain formula being pronounced by the priest. Hypnotic practitioners also used these objects in their séances, the deity who inspired them in their trances being supposed to enter their body by this channel. There are cases in Japan in which the devotee has gone a step further, and has constituted the object which was originally an offering a distinct and independent deity.

The Ainus of Yezo use in their worship whittled sticks called *inao* which have a general resemblance to an old form of the *gohei* and are no doubt a cheaper substitute for them. The *inao* like the *gohei* are primarily offerings, but in certain cases they receive direct worship as gods, having become, in short, genuine fetishes. Another link between the *inao* and the *gohei* is provided by certain whittled sticks closely resembling *inao* which were in use in Northern Japan a century ago for striking women with, in order to ensure fertility, as at the Roman festival of the *Lupeercalia*. Similar sticks, after consecration by the Shinto priests, were formerly used at Kyoto to kindle the household fire afresh on the new year, and so avert the possibility of pestilence.

Borneo: Religion.

Hose and McDougall.

70 *Some Peculiar Features of the Animal-cults of the Natives of Sarawak, and their Bearing on the Problems of Totemism.* Communicated by Charles Hose, D.Sc., Resident of the Baram District, and W. McDougall, M.A., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 11th, 1900.

We had observed customs that seemed to indicate the existence of a well-developed totemism, either at the present time or in recent times, among the natives of Sarawak. We have therefore collected information bearing on this subject as diligently as possible, from all the tribes with whom we have come into intimate contact.

We found a great number and variety of peculiar rites and customs observed by the people of the different tribes in their dealings with animals and plants. We confine ourselves in this short paper to giving (1) a general account of the customs of one of the inland tribes, the Kenyahs; (2) to describing the *Nyarong*, or spirit-helper of the Sea-Dayaks, and some similar institutions among the other tribes; and (3) to pointing out the bearing of our observations on the totem problem.

The Kenyahs are a warlike agricultural people, living as isolated communities of twenty to fifty or more families, each community inhabiting a single long house built on the river-bank. Their religion is peculiar, in that they believe in a beneficent

Supreme Being and a group of departmental deities, while they attribute to every agent that affects their lives a spirit that must be properly respected and, if necessary, propitiated.

Most important to them of all the animals is the common white-headed hawk. He brings messages of warning and advice from the Supreme Being to those who know how to read the signs he gives, and he is consulted before every undertaking of importance, and sacrifices of fowls and pigs are made to him. A wooden image of the hawk stands before every house. Several other birds give them omens of lesser importance, and none of these may be killed or eaten.

The domestic fowl is killed as a sacrifice to the hawk or other powers, and its blood is sprinkled on the altar-posts of the gods and on the persons taking part in various ceremonies, especially peace-making ceremonies. The domestic pig is sacrificed in much the same way. The spirit of a pig is always charged with some prayer to be carried to the Supreme Being, and the answer is read from the markings of its liver.

The crocodiles are regarded as a friendly and allied tribe, and may be killed in retaliation only. No Kenyah will kill a dog, and the dead body of a dog is regarded with fear.

Kenyahs will not eat the flesh of deer or horned cattle, and there are many restrictions on touching or using any parts of them.

Only old or renowned warriors will wear or touch the skin of a tiger.

One house is decorated with carvings of the gibbon on every large beam, and all Kenyahs have a dread of the Maia and the long-nosed monkey.

There thus seems to be every degree of regard paid to the different beasts, from the mere uneasy feeling in the presence of the uncanny, long-nosed monkey to the elaborate cult of the hawk, and the nature of the respect paid to any species seems in nearly every case to be the direct expression of the impression made on the barbarian's mind by the behaviour of the beasts.

The Spirit-Helper.—Every Sea-Dayak hopes to be guided and helped all through his life by a spirit which announces itself to him in dreams and takes up its abode in some peculiar natural object or in some animal. In the latter case the Dayak will never kill or eat one of the same species of animal, and will lay the same prohibition on all his descendants, so that a whole family may come to pay especial regard to one species of animal for many generations. A similar institution occurs, though less commonly, among the other tribes. In such cases we seem to be able to trace sometimes the actual origin and growth of a totem.

Borneo: Stone Age.

Haddon.

Relics of the Stone Age of Borneo. Communicated by A. C. Haddon, Sc.D., F.R.S., Lecturer on Ethnography in the University of Cambridge, to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 7th, 1900. 71

Until about eighteen months ago the only authentic example in this country of a stone implement from Sarawak was the specimen collected by A. Hart Everett, which is now in the Pitt-Rivers Collection at Oxford. In December, 1898, the Sarawak Museum obtained a specimen of a different type. I discovered a third type in a Sibop house on the Tinjar River in the Baram District of Sarawak; later Dr. C. Hose, the Resident of the Baram District, obtained numerous examples from various interior tribes in his district; these he has generously presented to the University of Cambridge. The occurrence of stone implements in Borneo has been previously noted.

The implements are made of various rocks, including fibrolite, impure sandstone, arkose, silicified limestone, shale, andesite and chalcedony. The form, too, varies greatly; some are obviously axe heads, others adze blades, while certain cylindrical forms, with a more or less cup-shaped cutting end, were probably used to extract the pith from the sago palm. In the collection are several stones of irregular form; the former use of some of them is problematical, but they have recently been used as touchstones.

The natives have a high regard for these stone implements, which have in their eyes a sacred character, and it is very difficult to persuade their owners to part with them. In all cases fowls had to be sacrificed to appease the spirits. The implements are stored with other sacred objects, and most of them are believed to be teeth, or toe-nails, of Baling Go, the Thunder God.

Borneo: Ethnography.

Haddon.

72 *Houses and Family Life in Sarawak.* Abstract of a paper communicated by A. C. Haddon, Sc.D., F.R.S., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 7th, 1900.

The series of nearly fifty lantern slides exhibited by Dr. A. C. Haddon, taken during his recent expedition to Sarawak, were selected to illustrate the type of house that is common among the settled inland tribes of Borneo, and the every-day life of the people. No attempt was made to distinguish between the various tribes, as their mode of life is very similar in its main features. The villages are all situated on or close to the banks of rivers; most of the houses are of large size, and many contain from half-a-dozen to sixty families; sometimes a village consists of a single house or of a string of houses placed endwise to each other.

A house is built on piles some 10 to 20 feet from the ground. Along the side facing the river is a wide verandah which stretches down the whole length of the house; here many domestic industries are carried on, and all the social and public business is transacted. The dwelling-rooms of each family open by a single door on to the verandah. While the common verandah affords every facility for social intercourse, the privacy of the house is thoroughly respected.

In the verandah of nearly every house is at least one trophy of the skulls of enemies, which are supposed to bring good luck and plenteous harvests; food is occasionally offered to them and a fire has to be kept burning beneath them, otherwise the skulls would be uncomfortable and bring misfortunes to the house. Various industries were illustrated by slides, such as the husking and winnowing of rice by the women. The houses are often ornamented with carvings or painting of a conventional character, the style of decoration varying according to the tribe.

Borneo: Textiles.

Haddon.

73 *The Textile Patterns of the Sea-Dayaks.* Communicated by A. C. Haddon, Sc.D., F.R.S., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 7th, 1900.

The Sea-Dayak women weave short cotton rep petticoats and cotton sleeping wraps which are covered with beautiful and often intricate patterns. The patterns are made in the following manner: the warp is stretched on a frame, the woman takes the first fifteen to thirty strands and ties them tightly with strips of leaves at irregular intervals, according to the design, which she carries in her memory. The next fifteen to thirty strands are similarly tied, and this process is repeated until all the threads have been utilised. The warp is then removed from the frame and dipped in a

reddish dye, which colours the free portions of the warp, but the tied-up portions remain undyed; thus a light pattern is left on a coloured background, when the lashing is untied. If a three-colour design is required, as is usually the case, the first lashing is retained, and various portions of the previously dyed warp are tied up; the whole is immersed in a black dye, and then both sets of lashing are untied. The pattern is thus entirely produced in the warp, the wool is self-coloured, and does not obtrude itself in the material.

There are a very large number of designs and patterns, which are remembered by the women and handed down from mother to daughter. By far the greater number of these designs are based upon animals, whereas most of the patterns carved by the men on wooden and bamboo objects are derived from plant motives. The designs embroidered by the women on jackets and loin-cloths are usually zoomorphic in character, but the treatment of the motives is quite different from the decoration of previously described fabrics.

The decorative art of the Sea-Dayaks of Sarawak differs in character from that of the Kayans, Kenyahs, and other inland tribes.

Malay: Ethnography.

Skeat.

Report on Cambridge Exploring Expedition to the Malay Provinces of Lower Siam. Drawn up by W. W. Skeat, and presented to the British Association Committee on the National History and Ethnography of the Malay Peninsula. Bradford, September, 1900. Printed in full in the *Proceedings of the British Association*, 1900 (Bradford). 74

This expedition was organised to carry out a scientific survey, in which Ethnology, Zoology, Botany, and Geology should all have a share, of the little known Malay provinces of Lower Siam, and especially to extend the scope of the ethnographical collections and observations referred to in the Fourteenth Annual Report of the Antiquarian Committee to the Senate (June 6, 1899).

The party comprised Messrs. R. Evans, of Jesus College, Oxford; F. F. Laidlaw, of Trinity College, Cambridge; D. T. Gwynne-Vaughan, of Christ's College, Cambridge; R. H. Yapp, of St. John's College, Cambridge; N. Annandale, of Balliol College, Oxford, and myself.

The inhabitants of these provinces are, for the most part, Malay, but Siamese influence becomes gradually predominant to the northward, and the process of fusion between these two antagonistic elements presents some curious racial problems. But the most interesting subject for investigation in these provinces is perhaps presented by the very primitive jungle tribes of the interior, about whom much valuable information was obtained.

Yet another interesting tribe, of whom no account seems to have yet been published, is the sacred tribe of the Prâms, who claim to have come over from India, and to have established themselves in the country anterior to the coming of the Siamese or Malays. What truth there may be in their statements will (it may be hoped) now be ascertainable, as a copy of their sacred book, containing an account of their origin, was obtained by the expedition.

But the special interest of the territories traversed centres, perhaps, in the fact that they have hitherto formed a species of ethnical breakwater, but little, if at all, affected by the ideas of a higher civilisation. These ideas, however, are already taking root, and many of the manners and customs witnessed by the expedition are becoming obsolescent or are already obsolete.

It is hoped that when the results are known the present expedition will be found

to have achieved results to some extent comparable with those obtained by the important expedition sent by the Dutch Government to Mid-Sumatra in 1877-9. The results obtained should also be of value, for the purposes of comparison, with the results of the very successful Cambridge Anthropological Expedition of Dr. Haddon to the Torres Straits, Sarawak, and New Guinea.

Owing to the uncertainty as to the probable reception which the expedition would experience at the hands of the inhabitants, the good offices of the Siamese Government were bespoken by the Foreign Office; and I have much pleasure in recording the extreme hospitality and enlightened help which the expedition consequently received from the local authorities, in some cases, perhaps, under rather difficult circumstances.

We reached Singora on March 27th, 1899, and were most hospitably entertained in his own house by the High Commissioner, H. E. Phya Sakhum. Next day we proceeded up the Inland Sea. Some dredging was done here by Messrs. Evans and Annandale, and the Bird's Nest Islands were visited, observations made, and photographs taken of the curious cave-dwellings of the island guards.

At Lampan (Lumpum) a short stay was made by Messrs. Evans and Vaughan, Mr. Annandale and myself proceeding into the interior to try to meet with a small Sakei (jungle) tribe of Pangans who were reported to have been seen in the vicinity, and to photograph some of the Siamese tree-graves, which method of burial, in accordance with instructions from Bangkok, is fast becoming obsolete. A forced march by night on elephants brought us to the spot too late to overtake the wild men, who had moved away, no one could say whither, the night before our arrival. Mr. Annandale was able, however, to photograph their late dwelling-place, which consisted of a cave under a projecting rock, near the summit of a lofty hill. He also took photographs of the tree-graves. These are usually cigar-shaped wrappers, or rather "shells" made of laths, and suspended horizontally at a height of 6 to 8 feet from the ground between two tree-trunks, branches, or posts. The corpse is exposed in one of these shells (the heels being generally left higher than the head), and allowed to decay till the bones are clean, after which the bones should be collected and burnt. Box-like receptacles on posts (as among the Madangs of Borneo), are occasionally substituted for the wrappers. On this journey some strange articles of diet were served up to us, among them being red ants, toads, bee-grubs, and a species of cicada. The manner in which the latter are caught is peculiar. Two or three natives gather at night round a brightly burning wood fire, one of them holding a lighted torch. The others clap their hands at regular intervals, and the cicadae, attracted by the noise and guided by the light, fly down and settle upon the people as they stand by the fire. In the Wat (Siamese temple) at Ban Nah Mr. Annandale noticed that one of the small figures of Buddha which had been deposited in the temple as an offering, contained a fossil shell, and this clue, carefully followed up, led to the discovery of the quarry from which the fossil had been taken.

On reaching Lampan we found that Messrs. Evans and Vaughan had proceeded to the "Tâlé Noi," or "Little Lake," at the end of the Inland Sea, and followed them accordingly. We did not overtake them, but our visit to the "Little Lake" was of great interest. In one of the local "wats" or temples a human embryo was found among the offerings. We also came upon a small isolated tribe called "Prâm" (? Brahm) people, who claimed to be a sacred tribe of Indian origin, and appear to have been hitherto undescribed. They retained several peculiar customs, notably that of burying their dead in a sitting posture, with the top-knot tied to the top of the coffin. A copy of a sacred book, describing the origin of the tribe and the story of

their migration, was obtained with difficulty. It is said to be written in an Indian language, which they themselves no longer understand. Their dress consisted of a white robe, a white shoulder-cloth, and a peculiar white two-peaked turban or cap. Their chiefs claimed that they were the oldest inhabitants of the country, and that they were not constrained to make obeisance even to the sovereign.

After a few days' further stay in Singora, where we rejoined Messrs. Evans and Vaughan, we proceeded to Patani in the commissioner's yacht, arriving after a good passage just in time to witness part of the gorgeous pageantry of a Malay "royal" wedding, between the Raja of Patani's sister and the "Raja Muda" of Kelantan.

On the 28th we left for Bukit Besar, or Negiri (Intragiri), an isolated mountain about 3,000 feet high, on which several days were spent. This was known to the natives as a haunted mountain possessing a pond near the summit, on which are said to grow certain magical shrubs, one of which is believed to be the means of conferring perennial youth on its finder, and another to be one of the most powerful love-charms in the world. These treasures are guarded by a host of demons, and the natives expressed great fear of them until the ascent to our camp (at a height of about 2,000 feet) had been successfully accomplished, after which their fears rapidly subsided. Mr. Evans got his first specimen of *Peripatus* here, and Mr. Vaughan also did well with the mountain flora.

On our return to Patani Messrs. Vaughan, Annandale, and Evans proceeded up the Patani to Biserat in Jalor (Jalā), which proved an excellent collecting ground. I stayed at Patani for some days longer, and visited the very extensive salt pans near the river mouth, the Patani potteries, and the grave and shrine of the celebrated local saint of Cape Patani, about all of which much information was gained. Of the latter many miracles are told, and his grave-posts (at the head and foot) are still believed to make prophetic movements, one instance of which I was enabled to test on the spot. Two very curious rods, such as are used in divination, were here obtained.

On the 26th I rejoined the rest of the party at Biserat, and then visited the magnificent limestone caves, a very complete collection of whose fauna was made by Mr. Annandale. These caves included the fine Gûa Gambar, or Statue Cave, which contains a recumbent figure of Buddha, nearly 100 feet long, as well as a number of other statues in a sitting posture. Extensive zoological and botanical collections were also made at Biserat by Messrs. Evans and Vaughan. An exhibition of devil dancing was here witnessed.

Small-pox having now set in badly and two deaths occurring in the village, collecting became more difficult, and presently the Raja and his household retired to the hills, and many houses were closed by means of a rattan carried round outside the fence of the compound, whilst slipknots of jungle-grass (*lalang*) were hung across the gate, and a couple of stems of a bitter-tasting tree, called the Bedara Pahit, buried cross-wise on the threshold.

One of the annual ceremonies for the purification of a village was here witnessed, and many ethnological specimens and much information obtained. On June 6 Mr. Evans fell ill, and as he took long to recover, Messrs. Annandale and Vaughan proceeded to Kota Bharu, in Raman, whilst Mr. Evans and I went down to the coast.

After spending a few days at Patani, we went to Jambu in Jering. Here, too, I witnessed the annual ceremony for the purification of the village, at which the launching of a spirit-boat, about a yard and a half long, formed the chief feature.

Before leaving Jambu I paid a flying visit to Teluban. On returning to Patani we were rejoined by Messrs. Vaughan and Annandale, and proceeded by the overland route through Raman Lige and Ulu Kelantan, and up the Lebih, a tributary of which stream, the Aring, takes its rise in the neighbourhood of the Tahan Mountain, which it was one of the objects of the expedition, if practicable, to ascend. The expedition therefore started from Biserat on July 6, and proceeded to Kota Bharu, the chief town of Raman. . . . Mr. Laidlaw accompanied me up the Aring river, and there took photographs and full measurements of several persons belonging to the wild tribes, while a good deal of information about their manners and customs, as well as a vocabulary of nearly 600 words, were collected by myself.

On our return, we all descended the Lebih on rafts, as far as its juncture with the Kelantan river, and thence descended the latter as far as Kota Bharu, the capital of the important East Coast State of Kelantan, and the seat of its Raja.

On the way down the river we measured and photographed several more Sakeis. At Kota Bharu Messrs. Laidlaw and I stayed for about a month, Messrs. Yapp and Evans proceeding to Trengganu, in order to pay a short visit to the coral islands off that coast.

Much important ethnological work was done at Kota Bharu. Investigations were conducted into Malay methods of industry, and a devil-dancing performance was witnessed by Mr. Laidlaw and myself, at which the name of the winning bull at a coming bull fight was correctly prophesied. Full anthropological measurements were taken by Mr. Laidlaw of ten or twelve Kelantan Malays, notes made of the colour of their skin, eyes, hair, etc., and experiments made as to their colour vision. Measurements were also taken of at least ten of the Trengganu Malays, and full observations recorded.

At Trengganu my investigation of Malay industries was continued and much useful information obtained. The most interesting was, perhaps, the method of manufacturing damasked krisses—the details of which were carefully studied.

On leaving Trengganu, we proceeded to Singapore, where a few days were spent, and a visit paid to one of the villages of the "Orang Laut" (the old piratical stock of sea-gypsies, who were once the terror of the Straits, and who were found by Sir Stamford Raffles living in their boats round about the island of Singapore, when it was proclaimed a British Colony).

By the first available steamer we proceeded to Penang. . . . As soon as I was able to go up country, I proceeded to Kedah, and there, after a short excursion up the coast to Satal and Perlis, made two expeditions into the Sakoi country, near the headwaters of the Muda. Here I had the good fortune to find a tribe of from twenty to thirty individuals living in a long barrack-like shelter of palm-leaves. From them, and from a neighbouring tribe, I obtained much valuable information as to their manners, customs, and language, as well as full measurements of a few individuals, and some probably unique phonographic records of their songs, which are of an extremely simple and primitive character. I also, with difficulty, procured the skeleton of an adult male. In all the States visited by me, investigations were made into the leading Malay industries, and much valuable material bearing on this subject was collected. Wherever possible, statistics were obtained showing the extent and nature of the development of trade and the stage of civilisation which had been reached by the people. Many of the leading Malay industries, such as that of weaving, are being rapidly modified by the introduction of European methods and appliances, and it is now the rarest and most difficult thing to obtain cloth actually made of

homespun thread, the use of Singapore silk and aniline dyes being already almost everywhere the fashion.

In addition to the above, the departments of ethnology studied included religious and medical ceremonies, children's games, legends, languages and dialects, under each of which headings a mass of material was collected.

Malay: Physical Anthropology.

Laidlaw: Duckworth.

Notes on the Anthropological Observations made by Mr. F. Laidlaw in the course of the Skeat Expedition to the Malay Peninsula. Communicated by W. H. L. Duckworth, M.A., Lecturer on Anthropology in the University of Cambridge, to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 11th, 1900. 75

The anthropological results of the Skeat Expedition comprise museum specimens in the form of a skeleton of a native of the Pangan tribe (Kedah), of samples of native hair, and also a collection of measurements by Mr. Laidlaw.

The skeleton is that of an adult male, whose stature was distinctly small (about 5 feet); the skull presents a combination of features commonly found in the skulls of negroes, with those which characterise the crania of infants; the whole constituting evidence of the lowly physical type of the individual. The bones of his skeleton show signs of widespread disease, possibly of a congenital nature. Mr. Laidlaw's measurements and observations relate to members of the same tribe, and are to be welcomed as affording precise information about a race of Malayan aborigines hitherto little investigated. Perhaps the most interesting point to notice is the small average stature of the Pangans (about 5 feet for adult men); though dwarfish, they are, however, markedly taller than the African dwarfs. It is also noteworthy that differences in the colour of the skin (varying shades of dark brown), and in the character of the hair, occur in the different tribes. It is important to notice that they present comparatively few anatomical features which can be claimed as evidence of an approximation to the ape. However primitive in their mode of life, they are anatomically truly terrestrial and human.

The present communication is only a preliminary account of Mr. Laidlaw's results; moreover there is much information available through the efforts of the Skeat Expedition regarding the mode of life, language, customs, and religious beliefs of these fast disappearing aborigines. The British Association is, therefore, to be congratulated on having assisted materially, by contributing to the Skeat Expedition, in rescuing these records of the Pangan tribe of the Malay Peninsula.

Malay Peninsula: Magic.

Skeat.

Malay Magic: Being an Introduction to the Folklore and Popular Religion of the Malay Peninsula. By W. W. Skeat, with a Preface by C. O. Blagden. London: Macmillan and Co., 1900. pp. 1-685, with 41 illustrations. 21s. net. Presented by the Publishers. 76

Mr. Skeat has performed a great service to students of comparative customs and religion by the publication of this book, which contains a large amount of original matter as well as quotations from the writings of other trustworthy observers. The author has done well to reprint these, as it saves other workers an immense amount of time and trouble in hunting up references in publications which are often difficult of access, and at the same time, one feels that the excerpts have received the additional authority of Mr. Skeat, for if he had not considered them reliable, he would

not have quoted them. It is sometimes urged that because certain customs or beliefs are similar to those in adjacent countries, or even in far-off lands, there is no need to reproduce them; this is a very unscientific position. In all branches of science a vast amount of tedious and apparently unprofitable work has to be done before generalisation can be safely made, and we should offer our hearty thanks to original investigators like Mr. Skeat, who are content to laboriously collect and sift information, and then to publish it in a straightforward manner, enriched with local knowledge and unvitiated by strivings to support original or other theories. The critical labour which Mr. Blagden has expended in seeing the work through the press also deserves our warm thanks.

A few more explanatory notes might have been offered; for example, the reason why bamboo shoots were tabooed to Princess Rimbut (p. 152) was because the caltrops that previously wounded her were made of bamboo. It is a pity the word "armadillo" should have been used on p. 154, as that name should be confined to the South American edentate.

The book begins with creation-myths, both of the world and of man; not only have human beings souls, but so have natural objects as well. Usually the soul resembles the body, but the soul of the eagle-wood is thought to take the shape of a bird, the soul of tin-ore that of a buffalo. We naturally pass on to the magician or individual accredited with supernatural powers, who can deal directly with the souls or essences of men and bodies on the one hand, and with the unseen powers on the other. Mr. Skeat makes the suggestive statement that "the evidence of folk-lore, taken in conjunction with that supplied by charm books and romances, goes to show that the greater gods of the Malay Pantheon, though modified in some respects by Malay ideas, were really borrowed Hindu divinities, and that only the lesser gods and spirits are native to the Malay religious system." The influence of Islamism is also very apparent, and many undoubtedly Malay pagan charms terminate with the Islam formula.

A large series of magic rites and formulae are given in connection with the wind and weather, animals, vegetation, and minerals, water, fishing, and fire. The life of man is hedged in with magical rites, and we learn from Mr. Skeat what has to be done at birth, adolescence, betrothal, marriage and death. Most of the illustrations are from specimens in the splendid collection that Mr. Skeat presented three years ago to the Cambridge University Museum of Archaeology and Ethnology. A. C. H.

Malay Kris.

Louis.

77 *The "Kingfisher" type of Kris.* Communicated by Professor H. Louis, M.A., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 10th, 1900. (With Plate I-J.)

This paper described a peculiar pattern of *Kris*, which is used in a limited area in the north-east of the Malay Peninsula. The Malay legend of its origin is that a party of Malays from the Bagis Islands invaded that portion of the Peninsula many centuries ago. One of their leaders was known as "the Kingfisher," presumably on account of his rapid movements. The invasion was successful, but the leader fell in one of the last engagements, and after his death his followers carved their *kris*-handles into shapes resembling the Kingfisher's head and beak. Under Chinese influence the pattern became more and more ornate, until it reached the present fixed type.

The writer discovered in a pawnshop in Bangkok an earlier form of this type,



FRONT VIEW.



BACK VIEW.

(*Miscellanea*, 1901. No. 61.)



HANDLE OF "KINGFISHER" KRISS.



HANDLE OF "KINGFISHER" KRISS,
OLD PATTERN.

(*Miscellanea*, 1901. No. 77.)

possibly the only one extant. This *kris* seems to have been sold by a Malay in this region, many of whom are well known to have been deported by the Siamese between the years 1790 and 1820; colonies of their descendants still exist in Siam, and have been visited by the writer. The early type of "Kingfisher" *kris* is much more like the bird's head than the modern pattern, which is, however, the only one seen among or known to the Malays. The region in question has rarely been visited by Europeans.

Malay Metal-work.

Rosenhain.

Notes on Malay Metal-work. Communicated by Walter Rosenhain, B.A., to the Anthropological Section of the British Association for the Advancement of Science, Bradford, Sept. 10th, 1900. [To be printed in full in this *Journal*, vol. xxxi.] **78**

The paper dealt with some specimens of Malay metal-work submitted to the author for microscopic and other examination by Mr. W. W. Skeat. Some Malay processes actually witnessed by Mr. Skeat were described, and the bearings of the microscopic examination on the explanations of these processes were discussed.

The first question dealt with was the production of the "damask" pattern on a Malay *kris*. Microphotographs were given showing that the "damask iron" really consists of layers of loosely welded wrought iron, the only other metal used being tool steel. The body of the blade is made of steel, and a layer of laminated "damask iron" is welded upon either side of the central layer of steel; a thin layer of steel is welded on outside the "damask iron." The author believes that the striated "damask" effect is due to the opening of the loose welds in the damask iron during the forging of the blade, steel being driven between the laminæ. The outside layer of steel is entirely ground away, and when the compound surface so produced is "etched" by the pickling process employed, the more readily corroded steel is attacked, leaving the edges of the layers of iron as a series of narrow projecting ridges.

The tools of the Malay goldsmith were next described, and the micro-structure and composition of Malay bronzes and "white metal" were described and discussed.

The final section of the paper dealt with the Malay method of producing chains by casting.

Language; Theory of Grammar.

Temple.

A Theory of Universal Grammar, as applied to a Group of Savage Languages. By Colonel R. C. Temple, C.I.E. (*Jour. Roy. Asiatic Society*, July, 1899, 8vo.) Presented by the Author. **79**

This little pamphlet of forty pages is described by its author as an attempt to formulate a general theory of grammar upon logical principles, in which reference to the terms and conceptions of the ordinary inflectional languages of modern Europe should be abandoned. Describers of new languages are very rarely found to have the courage to break away from the trammels of the classical or modern systems of arrangement and nomenclature, and follow the natural structure and development of the language discussed. The difficulties are acknowledged, and many expedients invented to bring them into line with the totally different model, and native methods of thought and expression are thereby obscured.

To the student of those languages, therefore, which do not come within the view of the classical scholar, and to those who find an interest in the uncultivated and

therefore undistorted languages of savage peoples, Colonel Temple's theory will be most welcome as the suggestion of a new method of description, and will be found well worthy careful examination. The author has illustrated his general theory by the particular example of the South Andaman group of languages, but it is manifest that its proper exhibition requires examples in various unrelated and morphologically different languages. It is impossible within the limits of a short review to adequately discuss Colonel Temple's argument, and the reader is accordingly referred to the work itself for details. In the earlier portion the author, taking the sentence as the unit of language, discusses its composition and method of indicating purpose, and also the method of expressing the inter-relation of words in a sentence. This leads him to the definition of a series of terms in harmony with his analysis of the sentence, these terms to take the place of the old so-called parts of speech. Colonel Temple's terms are:—1. *Integers*, words which are complete sentences; 2. *Indicators* of subjects or complements of subjects; 3. *Explicators* of subject or complement. 4. *Predicators*, indicating the predicate; 5. *Illustrators* of predicate, complement, or explicator; 6. *Connectors* of the internal components of the sentence; 7. *Introducers*, explaining the purpose of a sentence; 8. *Referent Conjunctions* joining connected sentences; 9. *Referent Substitutes* representing in a subordinate sentence the word to which it refers in the principal sentence. These terms take the places respectively of 1. Imperatives or interjections; 2. Nouns; 3. Adjectives; 4. Verbs; 5. Adverbs; 6. Prepositions; 7. Certain adverbial conjunctions; 8. Conjunctions; 9. Pronouns.

The author then proceeds to discuss the functions of words as indicated by their form. The stem of a word may be simple, consisting only of the root, or be modified by radical affixes to form a compound stem. Qualitative affixes indicate the function of the word and the class to which it belongs, and they may be prefixed, infixes or suffixed, either separably or inseparably. The author has not discussed inflection with regard to its influence on affixes, and additions would possibly have to be made to this section of the theory upon a consideration of some American languages.

The final section discusses the classes of languages as shown by their variation in forms of words, position of words in the sentence, or a combination of form and position. Colonel Temple's principles of classification are as follows:—

1. Syntactical Languages. (Position of words indicate meaning.)
2. Formative Languages. (Forms indicate meaning.)
 - a. Agglutinative. (Affixes without alteration.)
 1. Pre-mutative. (With Prefix.)
 2. Intro-mutative. (With Infix.)
 3. Post-mutative. (With Suffix.)
 - b. Synthetic. (Affixes with alteration.)
 1. Pre-mutative.
 2. Intro-mutative.
 3. Post-mutative.

This outline of a theory is worthy of much expansion chiefly with regard to its application to languages of various forms. The present writer attempted to test it by means of the analysis of parallel sentences in fourteen languages of widely different types. The inclusion of these would have rendered this notice too long, but a general conclusion was arrived at that the theory is adequate for the explanation of all of them.

SIDNEY H. RAY.

EUROPE.

England: Palæolithic.

Bell.

80

On the occurrence of Flint Implements of Palæolithic type on an Old Land-surface in Oxfordshire, near Wolvercote and Pear-tree Hill, together with a few Implements of various Plateau Types. Communicated by A. M. Bell, M.A., to the Anthropological Section of the British Association for the Advancement of Science, Bradford, September 12th, 1900.

At Wolvercote near Oxford there is a large section of a quaternary river-gravel, which has produced the usual fauna, *elephas primigenius*, etc., and many fine implements of human workmanship. This gravel cuts into, and is consequently newer than, a previous land-surface. A portion of this surface is found at Wolvercote, and another portion at Pear-tree Hill, about half a mile distant.

In both places flints, implements of palæolithic types, together with bulbed flakes, and a few implements of plateau type have been found. In every case the flints are ochreous, which distinguishes them from those which belong to the river-gravel at Wolvercote.

The older surface has been previously described as Northern Drift. It is supposed by the author to be a remaniement of the true Northern Drift, but to have been deposited under semi-frozen conditions. It must be anterior to the river valley, and consequently its relics of man are the oldest as yet obtained from the Thames Valley.

The drift in question most resembles the drifts of Caddington described by Mr. G. Worthington Smith, and some sections on the Lower Greensand near Limsfield. Both of these drifts are implementiferous, and the author would correlate the Wolvercote and Pear-tree Hill surface with these drifts.

England: Roman.

Silchester Excavation Fund.

81

The Tenth Report of the Executive Committee of the Silchester Excavation Fund states that the excavations at Silchester in 1899 were begun on 5th May, and continued, with the usual break during the harvest, until 16th November.

The examination of the south-west quarter of the town having been completed in 1898, it was resolved to continue the excavation of the northern half of the site. To suit the convenience of the tenant, the operations of 1899 were restricted to the *insula* (XXI) east of *insula* I (which was excavated in 1890-1) and to another *insula* (XXII) north of XXI, extending nearly as far as the town wall. The total area examined was about $5\frac{1}{2}$ acres.

Insula XXI appears to have been enclosed by walls on all four sides. In addition to two houses occupying the northern corners, it had on its eastern side a large house of the courtyard type, with another small house to the south of it. At the south-east angle of the *insula* was situated an oblong chamber with an apsidal end, perhaps the meeting-room of some trade guild. Other traces of buildings were found along the south side. The south-west angle unfortunately underlies the modern roadway through the city, and could only partly be examined. The western side contained two small square structures. With regard to the houses, that at the north-west corner was discovered in 1864, by the Rev. J. G. Joyce, who communicated an account of it to *Archæologia*. It was, however, only partly excavated by him, and additional chambers have now been found on the south and east. The north-east house is one of the corridor type that has become a courtyard house by later additions. In one of the

added rooms was a hypocaust of peculiar plan. The large house on the east side is of interest from the several changes it has undergone, as well as on account of the traces of a series of mosaic pavements of simple character. The small house to the south is remarkable for the number of pits and wells found beneath it. From these were extracted several whole vases, some of an early type and excellent design.

Insula XXII, though equal in size to the other, contained a large amount of open ground in the centre and north-west. As there were no signs of a street on its eastern side, the portion excavated may form part of a larger *insula*. Near the south-west angle was a good-sized house of the corridor type, with a large chamber at one end terminating in an apse, which had a hypocaust beneath it. A square chamber of some size which had been added on one side has foundations of huge blocks of ironstone, and the same material has been used in what appears to have been a reconstruction of the western part of the house. Besides this house, portions of three others were found. Two of these were of very little interest. The remains of the third include a square block subdivided into two chambers of unequal size, with an apse attached to one side. All these had been warmed by hypocausts.

As usual, a number of wells were met with, lined with wooden framing towards the bottom. No architectural remains of any importance were met with save a piece of coping, part of a fluted Purbeck marble pilaster, and a fragment of a white marble slab. The finds in bronze, iron, glass, and bone were as numerous as usual, but do not call for special notice. From the pits examined an exceptionally large number of entire vessels of pottery were recovered, the total being about eighty. They include several pseudo-Samian vases of unusual quality, an inscribed drinking cup of Castor ware, and some large vessels of the coarse ware which is so seldom found entire. The coins found were not very numerous.

A detailed account of all the discoveries was laid before the Society of Antiquaries on 3rd May, 1900, and will be published in *Archæologia*; and a special exhibition of the antiquities, etc., found, was held as in former years, at Burlington House, in July.

The Committee propose, during the current year, to excavate the large area north of *insula* I and IX, which extends up to the north gate, and therefore issue an appeal for the necessary funds. The Honorary Treasurer of the Excavation Fund, F. G. Hilton Price, Esq. (17, Collingham Gardens, South Kensington), or the Honorary Secretary, W. H. St. John Hope, Esq. (Burlington House, W.), will be glad to receive farther subscriptions and donations.

England: Mediæval.

Armitage.

82 *On some Yorkshire Earthworks.* Communicated by Mrs. Armitage to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 12th, 1900.

The paper describes a particular kind of earthwork, very common in Yorkshire and in other parts of England, consisting of a moated billock with a banked and moated court attached. This type of fort has been attributed in turn to the Britons, Romans, Saxons and Danes, with equal improbability. The theory most general at present is that it is Saxon. But Saxon strongholds were built to shelter all the people of the neighbourhood, and were therefore of large area, while these earthworks are evidently intended to protect some individual chieftain and his personal following, as is shown by their small area. There is positive evidence that the Normans built earthworks of this kind in the eleventh century, as the bases of wooden castles, and these moated hillocks are still very numerous in Normandy. They are called *mottes*

in Norman-French, and this word is found in various parts of England in the form *mote*. An inquiry into the castles known to have been built by the Normans when they first came to England shows that almost all these castles had mottes, while the *burhs* or *boroughs* built by the Saxons never have these appendages, unless a Norman castle-builder has been at work there. The recognition of the Norman origin of these castles would help to solve an historical puzzle, how the Normans were able to hold England down. It was by a system of small fortified posts scattered all over the country that the action of the central machinery was carried into the remotest parts of the kingdom.

England: Physical Type.

Beddoe.

On the Anthropology of West Yorkshire. Communicated by John Beddoe, M.D., LL.D., F.R.S., to the Anthropological Section of the British Association for the Advancement of Science, Bradford, September 8th, 1900. 83

Five-and-twenty years ago, when I had the honour of holding the seat now so worthily occupied by Professor Rhys, I took for the subject of my address the Anthropology of Yorkshire. That address was based on the labours of sundry willing and friendly co-operators, as well as on my personal observations; but I fear that since that time but little has been added to our material, except by the discoveries of Canon Greenwell and Mr. Mortimer, of Driffield, in the domain of prehistoric archaeology and craniology, and by the observations of our lamented friend, Pitt-Rivers, on the fishermen of Flambro'. At all events, little or nothing of the sort has come to my knowledge; though I am not oblivious of such writers on conterminous subjects as Raine and Atkinson.

Why is this so? The most striking qualities of typical Englishmen have been thought to be strongly developed in Yorkshire. Among these, I fear, is the defect of imagination so often found in those who call themselves, with some pride, practical men. Such men entertain a positive dislike and even contempt for knowledge of which they don't see the immediate use; and they cannot be expected to help in the gathering thereof.

This character is not British, Celtic, Welsh. Yet it is often said that the old British element is strong north of the Humber. Let us enquire into the grounds of this belief.

Among them are the retention of such names for territorial divisions as *Deifyr* and *Bryneich*, *Loidis* and *Elmet*. But even Kent, Saxon or Jutish as it is, keeps its Keltic name. And when we come to river-names—I speak under correction of and in presence of a Keltic philologist; but may not *Swale* and *Skell* and *Nid* be Teutonic, as well as *Greta* and *Hull*.

Any argument for the potency of the British element derivable from the Northumbrian laws and were-gylds seems to me but weak. The Welshmen for whom provision was made may well have been the subjected but not amalgamated Britons beyond the Western mountains, the Cambrians and Lancashire men. They might be murdered at a reasonably cheap rate; but such was not the case with the ordinary churl, as it would probably have been if his descent had been recognised as British. Some have laid stress on the curious word "*wallerwents*," and have thought it signified Welshmen of some kind. Thirty-six *wallerwents* were summoned as compurgators or jurymen in certain cases. But it is very unlikely that thirty-six Welshmen, or indeed any Welshmen, could or would have had submitted to them disputes between members of the dominant race. Mr. Coote's ingenious suggestion

seems to me more probable. He thought that "wallerwents" was a corruption of "*valore equantes*," a Roman legal term importing the peers or equals of the defendant. That would imply some survival of a Latin dialect after the Anglian conquest, which may probably enough have been the case in the city of York; and if a dialect survived, *à fortiori*, the population who spoke it did so.

The Keltic rhyming scores in use among the shepherds of some parts of Northumbria; the fact proves nothing more than what is certain on other grounds, viz., the survival of a portion of the servile class during and after the Anglian conquest.

As for the evidence of dialect, a certain number of Keltic words remain in the dialect of Craven, but I think that in the lower valleys of the Aire and Wharfe such words are as infrequent as in other parts of England. How this may be in the south-western valleys I am unable to form an opinion. The dialect of the West Riding generally was set down by Prince Louis Lucien Bonaparte as intermediate between the Midland English and the true northern or Yorkshire of the East and North Riding, and was classified as nearer to the Nottinghamshire, Derbyshire and South Lancashire speech than to that of the other Ridings. I confess that my own opinion on this point would be different, if I could venture to form one; but if we accept the Prince's authority, we must take it to indicate, if anything, a greater potency of the Anglian, and a less one of the Scandinavian element, in the West Riding.

Of the cranial forms and facial features of the ancient inhabitants of the West Riding we really know very little. Thanks to Greenwell and Mortimer in the East Riding, and to Bateman and Davis and Thurnam in Derbyshire, we know that in both those districts there was the usual succession of longheaded stone-men, and round, or rather cordiform or wedgeheaded bronze-men, which occurred in other parts of England, though in the East Riding it was not so distinct. Perhaps conditions of soil or climate were somehow adverse, either to the peopling of these western moorlands or to the preservation of their bodily remains; whereas the chalk of the East Riding and the carboniferous limestone formation of Derbyshire were more favourable.

It is sometimes said, on the authority of hatters, that heads are broader in Yorkshire than in other parts of England. But there is not much scientific authority, I believe, for this statement, nothing more than a probability. I have only fifteen Yorkshire heads in my note books, and their average kephalic index is 78.28, that of all my Englishmen being 77.84 only, but fifteen is of course quite an insufficient number. Dr. Venn measured 524 students from the North of England, whose kephalic index, ascertained by a method somewhat different from mine, was 79.18, that of all his pure Englishmen being 78.94. Here Yorkshiremen are not distinguished from other northern men; but it is likely enough that the largeness of the figure is really due to the Yorkshire element.

My own impression, acquired by simple inspection, and fallible accordingly, is that in the central parts of the West Riding, and notably at Leeds, a prevailing type is characterised by an oblong or rather trapezoidal head, inclining to be broad rather than narrow, with a vertical forehead, smooth and not prominent brows, and a straight profile with a straight or sometimes concave nose. The smooth brows dissociate this type from that of the bronze race; and the squareness from the smoothly elliptic or oval one of the southern Saxon. Dr. Von Hölden would class it as Sarmato-Germanic, His and Rutimeyer as Belairian. I am disposed to call it Anglian, partly because of its usual association with a blond complexion, or at least with light hair, though the eyes are often of a muddy grey. Light hair is prevalent, not only hereabout, but in the mountainous regions to the north and south, in Teesdale, for example, and about

the Peak of Derbyshire; and this complicates the problem we have to deal with in the West Riding population. As a general rule, the proportion of light hair seems to be a pretty fair criterion of that of Saxon, Anglian, or Scandinavian blood; but here we have districts where we might reasonably expect to find the posterity of refugees of primitive races, rather than of conquering tribes or other comparatively recent immigrants. The anomaly of Teesdale may, however, be explained: the whole of Teesdale, down to Barforth and Cliffe, is returned in Domesday as waste, and the very blond population which now inhabits it must descend from subsequent immigrants. If such and so thorough was the result of the ravages of William the Conqueror and Malcolm Canmore, why may not those of Ethelfrid Fleisawr and Edwin have been equally effective? Bede indeed distinctly tells us that Ethelfrid exterminated the native inhabitants of some of his conquests, so as to render them habitable by the English. Why may not this have been the fate of the people of Loidis and Elmet? "Exterminated" does not necessarily mean slaughtered, but rather "turned out," "expelled"; and the surviving Welshmen would probably "trek" across the mountains into Lancashire.

This is the explanation to which I incline; but there are two others from which to choose. The phenomena may be the result of the action of "media," of surroundings, of a cold raw climate acting through natural selection. Or it may be that the Brigantes were really a fair race, perhaps of that late Gallic immigration which followed the bronze period, and to which some of Mr. Mortimer's crania may perhaps belong, but of which cremation has deprived us of many traces. The true bronze race is generally thought to have been fair or reddish; but though individuals who reproduce its type occur hereabout, I don't think they are frequent: they should combine the broad head with strong prominent brows and nose, like the noble savage of Gristhorpe, who now adorns either the York or the Scarborough Museum.

On the whole, I think the eastern and central regions of Yorkshire, judging by physique, less purely Teutonic than Teesdale or the Wapentake of Morley, though more so than Craven. The eastern men, at Beverley, Driffield, Whitby, Thirsk, Malton, seem to me more mingled and less typical, more like other Englishmen than these in the west. There was doubtless less French immigration hither after the devastations of the Conqueror than into the east, which had suffered much more severely; and perhaps some survivors of the massacre and famine found refuge here among their kin. Certainly many Anglian and Danish gentlemen remained on Ilbert de Lacy's huge estate, holding what had been their own lands under his easy and generous rule; and they were the progenitors of many mediæval knights and squires. Thus, for example, the families of Elland and Quarmby, actors in the sanguinary Elland Vendetta, in the fourteenth century, were of Anglian or Anglo-Danish pedigree, descendants of Gamel and of Orm. And, probably, the mass of the population was of the same racial character. So far as I know, it has undergone no material change in that respect since those days. Certain Flemings or Frisians may have settled in Halifax and elsewhere; but if my view is correct, they could not much alter the physical type, for they were near cousins of the people among whom they mingled. But in our own times changes are going on pretty rapidly, owing to the greater facility of migration. And this leads me, in conclusion, once more to beg for local assistance in solving two at least of the problems I have been discussing. One of these is historical. How were the voids created by the ravages of the eleventh century filled up? I may remind you, as I recollect doing five-and-twenty years ago, that the side of this great and opulent and populous city was stated by the authors of Domesday Book to be then waste, desolate and valueless.

The second is somatological. What are the prevailing physical types, especially as to form of head, among modern West Ridings? I am not going to exaggerate the importance of such questions; but if the latter one is at all worthy of being studied and answered, it should be studied and answered at once, before the population becomes so mixed as to lose or confuse its characteristic features.

Scotland: Physical Type.

Gray and Tocher.

84 *The Physical Characteristics of the Population of West Aberdeenshire.* Communicated by J. Gray, B.Sc., and J. F. Tocher, F.I.C., to the Anthropological Section of the British Association for the Advancement of Science, Bradford, September 12th, 1900. [Compare the previous paper of the same authors, in this *Journal*, vol. xxx, p. 104.]

These observations were taken at the Lonach gathering, in Strathdon, a district right at the head of the valley of the Don. The district is comparatively isolated, the nearest railway station being over 12 miles distant.

Our principal object was to ascertain what difference, if any, existed between the people in the upper ends of the river valleys and the people on the eastern seaboard, the anthropological statistics of which have been recently ascertained. The following results show that a very considerable difference exists; and, it being highly probable that a more primitive stratum of the population is always to be found in the upper ends of river valleys, the results are of great interest from this point of view.

The pigmentation and nose statistics of the whole of the people attending the gathering, namely 361 males and 243 females, were taken at the gate by two observers. Later on, the same statistics, with the addition of measurements of the head and of stature, were taken in a tent in the grounds, about 90 adult males, natives of the district, being measured. The people observed at the gate contained a small percentage of visitors from a distance, which may account for the difference in the results obtained at the gate and in the tent:—

	HAIR.				EYES.			TYPES OF NOSES.				
	Fair.	Red.	Brown.	Dark.	*Light.	Medium.	Dark.	Straight.	Roman.	Wavy.	Concave.	Jaw.
MALES—												
W. Aberdeenshire (gate)	10	8	42	40	37	48	14	79	15	3	2	1
" " (tent)	5	8	40	47	38	45	17	56	22	13	6	3
E. Aberdeenshire (gate)	9	6	66	19	26	51	23	56	17	7	17	3
" " (tent)	18	2	40	40	35	46	19	66	20	8	4	1
FEMALES—												
W. Aberdeenshire (gate)	8	6	36	50	39	34	27	82	9	2	6	1
E. Aberdeenshire (gate)	10	6	55	29	22	39	39	60	7	5	27	1

* Blue eyes were taken separately at the Lonach gathering, and were found to form about 10 per cent. of the *light* eyes, which, in the table, included blue eyes.

An examination of the above table shows that on the average the hair is much darker in West than in East Aberdeenshire, a result which might be accounted for by the presence of a larger percentage of the North German blonde type on the east coast. The eyes, however, are lighter in the west than in the east, an anomalous result which is not so easily explained.

The following table gives an analysis of the measurements of the 90 adult males,

taken in the tent, and their correlations with pigmentation and types of noses, corresponding results obtained from the rural population of East Aberdeenshire (Mintlaw gathering) being given for the sake of comparison:—

	Per cent. of population.	Heads.		Stature.		Nigrescence.		Types of Noses.				
		Bdth.	Lgth.	ft.	in.	Hair.	Eyes	S.	R.	W.	G.	J.
W. Aberdeenshire (90 persons):												
General averages	—	157	198	5	8½	76	40	56	22	13	6	3
Group I (158-167)	50	161	200	5	9½	78	38	55	18	20	0	7
" II (153-157)	35	155	196	5	8½	79	42	53	34	3	10	0
" III (149-152)	12	151	197	5	9	67	45	64	18	18	0	0
" IV (145-148)	2	146	199	5	9½	83	50	100	—	—	—	—
E. Aberdeenshire (169 persons):												
General averages	—	153	195	5	8½	68	41	66	20	8	4	1
Group I (158-167)	14	161	199	5	9	70	39	70	21	9	0	0
" II (153-157)	44	155	195	5	8½	66	40	68	20	11	0	1
" III (149-152)	28	150	193	5	7½	67	45	61	22	4	6	0
" IV (142-148)	14	146	192	5	7½	69	37	71	17	4	4	4

In the head-breadth frequency curve of the population of East Aberdeenshire we found two well marked peaks at 150 mm. and 155 mm., and two lesser peaks at 145 mm. and 160 mm. Taking these breadths as centres, we have divided the people into four groups, the limiting breadths being marked opposite each group in the above table.

The general averages given in the table show that in West Aberdeenshire the people have broader and longer heads, they are taller by ½ inch, they are darker in hair and lighter in eyes, and they have rather higher percentages of Roman, wavy, and concave noses than in East Aberdeenshire.

The first column in the table shows approximately the percentage which each group forms of the population. Group I is much better represented in the west than in the east, being 50 per cent. of the population in the former case, and only 14 per cent. in the latter case. The average breadths and lengths of the head, in this group, come out almost exactly the same in the west and in the east, and the stature (5 feet 9½ inches), which is very high for an average, differs only by ½ inch in the two places. The nigrescence, which is calculated by a formula in which the relative value and percentage of all the colours is taken into account,¹ shows that in both the east and the west this group is darker in hair and lighter in eyes than the general average of the population. It is evidently the presence of a larger percentage of this group in the west which accounts for its superiority in *physique* over the east. Group II is well represented in both east and west. Groups III and IV are, however, almost completely absent in the west; the total numbers 11 and 2 in these groups, in the west, being so small as to make the averages for stature, etc., given in the table unreliable.

It seems reasonable to conclude from these results that, in Aberdeenshire, at some distant date, a tall, broad-headed, dark-haired, light-eyed people has been driven inland by later immigrants who were shorter, had narrower heads, and were of the blonde type.

A frequency curve of breadths of round barrow heads shows that Groups I and II were well represented in the Bronze Age in the British Isles. Groups III and IV

¹ See *Journ. Anthropol. Inst.*, vol. xxx, p. 113.

have the breadths of long barrow heads, which, however, are much longer (208 mm. on the average). The Rowgrave heads of North Germany, whose average length is given as about 200 mm., come much nearer to Group III; and as these probably represent the aboriginal blonde race of North Germany, it is reasonable to assume that our Group III represents blonde immigrants from North Germany, who, when they arrived in Aberdeenshire, found the country in possession of a tall, broad-headed, dark-haired, blue-eyed people, the descendants of the men of the Bronze Age. The resemblance of Group I to Deniker's Adriatic type is significant when taken in conjunction with the fact that bronze first came into the British Isles from South-east Europe.

Germany: Folklore.

Wuttke.

85 *Der deutsche Volksaberglaube der Gegenwart.* Von Dr. Adolf Wuttke. 3te Bearbeitung von Elard Hugo Meyer. Berlin: Wiegandt & Grieben. 1900. 8vo. pp. xvi, 536. Price 12 marks.

The original author of this work would probably hardly recognise it at first sight, for in the hands of its present editor, whose previous work in the field of German folklore clearly marked him out for the task, it has much more than quadrupled itself, and is now a work at once interesting to read and indispensable to all students of custom and belief, whether in Germany or in other countries. If he has not produced an absolutely complete work, Dr. Meyer has given us an unsurpassed collection of popular superstitions and practices. Even the specialist can turn to it with advantage to himself; if he can point out omissions, he can also learn much from it. The name of the author is a sufficient guarantee for the accuracy of the facts recorded and of their localisation, but some of us will regret that the authorities were not in all cases given. A complete bibliography of works used would have been useful, even if the editor is correct in holding that exact references are superfluous. In any case, it would have been advisable to identify the facts now published for the first time.

Another point on which many will be disposed to differ with him is the retention of the more than doubtful mythological theories of his original author. Those who wish for information on Wodan and Fro, Freya and the Valkyries, will rather turn to more reliable authorities. The book is a collection of folklore, not a connected whole, and the excision of unreliable portions would have left more space for other matter or permitted the editor to replace them by something less open to criticism. The editor has in some portions of the book appended a warning ?, but there remain a sufficient number of assertions calculated to mislead the unwary. It would, for example, have been well to modify the unqualified statement (§ 82), "the hare, probably a symbol of fertility, belongs to Ostara, the goddess of spring." The very existence of a goddess Ostara is disputed, and the suggestion that the hare belonged to her was never more than a wild guess, due to the connection of the hare with Easter, both in Germany and in this country. Many other statements might be mentioned which are more interesting than reliable: the devil's horns (§ 171) are derived from Donar's goat; and the mythological views of the original writer are throughout more prominent than their importance at the present day justifies, adopted though they be by his present editor.

It would not be difficult to compile a list of omissions, more or less important. The "Brauthahn" is not mentioned in this index, and only appears incidentally in the book; the egg-games at Easter, Blind Man's Buff, and the use of masks in general seem to be omitted; the list of animal superstitions might with ease be doubled; and the re-written section on the history of witchcraft is a little disappointing. A reference

to heathen priestesses, savage parallels, and points of connection with werewolves might well have found a place.

Completeness, however, in a "Sammelwerk" of this description is much more easy to aim at than to attain, and for the result of Dr. Meyer's efforts we should have nothing but admiration if the duty of the reviewer were not to criticise. A word of praise may be said for the index, which covers 42 pages in double columns and contains about twelve references to every page of the book. The use of the *, however, to indicate important references seems to be slightly erratic. On turning up "Tanz" in the index, § 252 is starred, but contains only 3½ lines on the subject. The print is conveniently large, and there is a most laudable absence of errata. N. W. T.

Germany: Folk Medicine.

Jühling.

Die Tiere in der deutschen Volksmedizin aller und neuer Zeit. Von Johannes Jühling, mit einem Geleitworte von Hofrath Dr. med. Höfler. Mittweida, Polytechnische Buchhandlung (R. Schulze), N.D. Svo. pp. 355. Price 6 marks. Presented by the Author. 86

Mr. Jühling has conceived the excellent idea of extracting the anthropological and folklore material buried in the MSS. of the University Library of Dresden. In this book we find the firstfruits of his labours—a large collection of receipts for the use of animals in medicine, most of them hitherto unpublished, together with an appendix of magical formulæ. The material is arranged in the main alphabetically according to the names of the animals, and there is also an index. It might have been well to give a little more information as to the manuscripts and to localise the superstitions better, especially where quotations from other works are in question. The work is intended for the use of the folklorist, and he wants to know where a superstition is practised. A bibliography of works cited is appended, but this does not always give a clue to the provenance of the matter cited. A dictionary of diseases would have been a laborious work, but would probably have made the book easier to use. These are, however, points of minor importance and more in the way of suggestions for the future.

Dr Höfler contributes a short introduction. He seems to take the view that human sacrifice was the original form; domestic animals were substituted for human beings, and wild animals for domestic animals. Even if the origin of the domestication of animals is not to be sought in sacrifice, there is no reason to suppose that the sacrifice of wild animals is later in time than the sacrifice of domestic animals. In a considerable number of cases the animals used in magic must be killed on a specified date or at a specified period of the year, *i.e.*, it was originally sacrificed at this date; it is therefore arguable that this is the origin of no inconsiderable part of the magical receipts. For the later developments, the doctrine of signatures, a first cousin of mimetic magic, was of great importance; bear's grease was used for bald people because the bear is a hairy animal. It is to be hoped that Mr. Jühling will soon give us the volume he promises in a footnote, and follow it up by similar works. N. W. T.

Bornholm.

Buschan.

Bornholm. By Dr. G. Buschan. From *Globus* LXXVI, pp. 84-127. 87
Presented by the Author.

Dr. G. Buschan has put together here a useful little monograph on the Island of Bornholm and its people; and has kindly presented a copy to the Library of the Institute. He deals first with the physiography of the island; then with its

prehistoric archaeology, pp. 88-91; and then goes on to a full description of the modern inhabitants, their mode of life, art, and customs; illustrated with a number of photographs of costume, silversmith's work, ironwork, carpentry and buildings; mostly from objects in the local museum. J. L. M.

Corfu.

de Claparède.

88 *Corfou et les Corfiotes*: par Arthur de Claparède, Docteur en droit, Président de la Société de Géographie de Suisse, etc., etc. Geneva. H. Kündig. 1900. 8vo. pp. 177. Presented by the Publisher.

This is a handy little volume of observations of Corfu and its people, the result of three visits made in 1897 and 1899. It contains, among other matters of less anthropological interest in Part I, a good sketch of the history of the island in Ch. III; a discussion of the principal elements of the population in Ch. IV; and descriptions of the cult of St. Spiridion, and other Corfiote customs and folklore in Ch. V. In the topographical section (Part II) there is a note on the Analipsis (Ascension Day) festival in Ch. II, and one on the Corfiote sites traditionally connected with the story of the Odyssey, in Ch. IV. J. L. M.

Crete: Prehistoric.

Hogarth.

89 *The Cave of Psychró in Crete*. Communicated by D. G. Hogarth, M.A., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 7th, 1900.

It has been known for some years that a large cave above the village of Psychró, in the Lasithi district of Crete, was a repository of primitive votive objects in bronze, terra-cotta, etc. As this cave is situated in the eastern flank of the mountain which dominates the site of ancient Lyttos, and is the only important cave known in the neighbourhood, it was conjectured that it was the Lyttian grotto connected with the story of the birth of Zeus in the legend, whose earliest version is preserved by Hesiod. A thorough exploration of it, undertaken in May and June of the current year, by Mr. D. G. Hogarth, on behalf of the British School at Athens, aided by the Cretan Exploration Fund, has served fully to confirm this view. The cave is double. On the north is a shallow grotto, the upper part of which was cumbered with immense fallen fragments of the roof. The lower part contained deep black earth, partly ransacked by previous diggers. This was thoroughly dug out this year, and when the great blocks had been broken up with blasting powder and removed, the deposit on the higher slope was also searched. The result was the discovery of a rude altar in the middle of the grotto, surrounded by strata of ashes, pottery, and other refuse, among which many votive objects in bronze, terra-cotta, iron and bone were found, together with fragments of some thirty libation tables in stone, and an immense number of earthenware cups used for depositing offerings. The lowest part of the Upper Grotto was found to be enclosed by a wall partly of rude Cyclopean character, and partly rock-cut; and within this Temenos the untouched strata of deposit ranged from the early Mycenaean Age up to the Geometric period of the ninth century B.C. or thereabout. Only very slight traces were found of later offerings. The earliest votive stratum belongs to the latest period of the pre-Mycenaean Age, that marked by the transition between the "Kamáraes" fabric of pottery and the earliest Mycenaean lustre-painted ware. But below all is a thick bed of yellow clay, containing scraps of primitive hand-burnished black and brown pottery, mixed with bones of animals. This bed seems to be water-laid, and to be

prior to the use of the cave as a sanctuary. Probably, when it was in process of formation, the cave was still a *Katavóthron* or swallow-hole of the lake which once occupied the closed Lasithi basin; but before the Mycenaean period the present outlet had opened, and the plain was dry.

The southern or Lower Grotto falls steeply for some 200 feet to a subterranean pool, out of which rises a forest of stalactite pillars. Traces of a rock-cut stairway remain. Much earth had been thrown down by the diggers of the Upper Grotto, and this was found full of small bronze objects. But chance revealed a more fruitful field, namely, the vertical chinks in the lowest stalactite pillars, a great many of which were found still to contain toy double axes, knife-blades, needles, and other objects in bronze, placed there by dedicators, as in niches. The mud also at the edge of the subterranean pool was rich in similar things, and in statuettes of two types, male and female, and engraved gems. These had probably been washed out of the niches.

The knife-blades and *simulacra* of weapons are probably the offerings of men; the needles and depilatory tweezers of women. The frequent occurrence of the double axe, not only in bronze, but moulded or painted on pottery, found in the cave, leaves no doubt that its patron god was the "Carian" Zeus of *Labranda*, or the *Labyrinth*, with whom perhaps his mother, the Nature goddess, was associated, and the statuettes probably represent the two deities. Here was the primitive scene of their legend, transferred in classical times to a cave on Mount Ida.

Crete: System of Writing.

Evans.

Writing in Prehistoric Greece. Communicated by Arthur J. Evans, M.A., F.S.A., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 6th, 1900. 90

1. *Clay Documents with Hieroglyphic or Conventionalised Pictographic Script from the Palace of Knossos.*—The discovery originally announced by the author, in 1894, in this section, *Proc. Brit. Ass.*, 1894 (Oxford), p. 776-7, of the existence in prehistoric Crete of a system of conventionalised pictographic or hieroglyphic writing had received an extraordinary corroboration and supplement from his recent excavations in the Mycenaean Palace of Knossos. The first indications had been supplied by groups of signs engraved on early seal-stones, and by its nature the evidence was limited. But in the great prehistoric building now partially explored at Knossos, the latest elements of which can hardly be brought down later than the thirteenth century B.C., there came to light a series of deposits of clay archives inscribed both with hieroglyphic and a new system of linear writing.

Those of the hieroglyphic class, though apparently contemporary with the other, were less numerous, and were found in a separate magazine. They were in the form of square and three-sided bars, perforated at the end, clay "labels" also perforated, in shape like bivalve shells, and sealings of clay which also presented impressions of signets with characters of the same conventionalised pictographic class. The graffito characters of the clay bars, etc., gave more linearised versions of the fuller representations of the engraved seals, and thus illustrated a step in the formation of letters. The tablets showed various new forms of hieroglyphs not as yet found on the signets, raising the Cretan series to over a hundred. The pictographic signs might be said to form an illustrated history of Cretan culture in Mycenaean times. Among new characters might be mentioned an eight-stringed lyre, carpenter's tools such as a kind of plane and perhaps a level, dogs' heads, bees, a glove-like object, perhaps not unconnected with bee-keeping, and apparently olive sprays. The

obviously "ideographic," or "determinative" character of some of the hieroglyphs gives a clue to the meaning of many of the tablets. Ships, ploughs and ox-heads, vessels filled with grain, and the Egyptian palace sign speak for themselves. A *boustrophédon* arrangement of the characters is often traceable. Many of these clay records are accounts, as is shown by the presence of various numeral signs, the ciphers never exceeding eight in a group. But the form of numeration still presents points of obscurity.

The hieroglyphic script itself shows a certain parallelism with the "Hittite" inscriptions of Anatolia and Northern Syria. Its beginnings can, however, be traced very far back on Cretan soil, and it unquestionably represents the writing of the indigenous Cretan stock, the "Eteocretans" of the Odyssey.

2. *Clay Documents inscribed with Linear Script from the Palace of Knossos.*—The great bulk of the clay records discovered in the Palace of Knossos exhibited a linear style of writing fundamentally different from that of the hieroglyphic class, and far ahead of it in development. The tablets are for the most part elongated slips of hand-moulded clay, from 2 to about 7 inches in length, and from $\frac{1}{2}$ an inch to 3 inches broad; others, however, are of a squarer form. They present some distant analogy to the Babylonian tablets, and the inscription is divided by horizontal lines. The letters themselves, however, are of a free, upright European character. Some seventy characters seem to have been in common use, and of them about ten show resemblances to the later Greek, and the same number to the Cypriote syllabary. About the same number of forms are also common to the hieroglyphic Cretan series. The letters seem to have been for the most part syllabic; lines of division appear between the words, and the writing runs consistently from left to right. The pictorial origin of these letters may be traced in some cases. Thus, we have the human head and neck, the hand, the crossed arms, a bird flying, three- or four-barred gates, a fence, a high-backed throne, a tree, and a leaf. A certain number are unquestionably ideographic or determinative. Others represent measures and quantities, and are always associated with numerals. A good many of these documents evidently refer to Palace accounts, and a clue to the general purport of the tablet is often supplied by the introduction of a pictorial figure. We thus find chariots and horses, human figures, perhaps slaves, axes, ingots, vases of precious metals, others of clay for various liquids, houses or barns, swine, ears of corn, various kinds of trees and a crocus-like flower, perhaps used for a dye or perfume.

A decimal system of numeration was employed, somewhat resembling the Egyptian. The value theoretically arrived at by the author for the numerals was proved by an addition sum presented by one tablet, the total of which worked out correctly.

The ingots depicted on the tablets resembled a Mycenæan copper ingot from Cyprus, and others from Sardinia. They were followed by a balance (the Greek *talanton*) and numerals apparently indicating their value in Mycenæan gold talents. It has thus been possible to make an approximate calculation of their weight. Objects in precious metals represented were identical with some typical tributary offerings of the Keft chieftains on the Theban monuments of Thothmes III's time, and tended to show that some of these clay documents went back to the first half of the fifteenth century B.C.

Other tablets, without ciphers or pictorial figures, perhaps refer to contracts or correspondence, such as the contemporary records of Syria and Babylonia. The tablets had been originally contained in coffers of wood, clay, and gypsum, and these in turn secured by clay seals bearing impressions of Mycenæan engraved gems of the finest style. These impressions had in many cases been countermarked with a

graffito sign by the controlling official while the clay was still wet, and the back of the clay seal was at the same time endorsed and countersigned with short inscriptions in the same script as that of the tablets. Such legal precautions were quite worthy of the "Palace of Minos."

These discoveries not only carry back the existence of written documents on Greek soil some seven centuries before the first known monuments of Greek writing, and five before the earliest Phœnician, but they afford a wholly new standpoint for investigating the origin of the alphabet. The letter-forms borrowed by the Greeks from the Phœnicians seem to have been influenced by these pre-existing Ægean scripts. The common elements existing in the Phœnician alphabet itself are very noteworthy. Out of twenty-two original letters, some twelve present obvious points of comparison with characters belonging to one or other of the two Cretan scripts, and to these at least four may be added as showing possible affinities. In view of such parallelism, which extends to the meaning as well as the form of the signs, De Rougé's theory of the derivation of the Phœnician letters from remote hieratic Egyptian prototypes must be definitely abandoned. The Phœnician, and with it the Greek, alphabet must be regarded as a selection from a syllabary belonging to the same generic group as the Cretan. Such a phenomenon on the Syrian coast is perhaps explained by the settlement there in Mycenaean times of an Ægean island race, the Philistines, whose name survives in that of Palestine. Though later Semitised, their biblical names of Kaphthorim and Kerethim, or Cretans, sufficiently record their Ægean origin.

Portugal.

Anthropological Journal.

Portugalia, Materiaes para o estudo do povo portuguez. 548 rua de Cedofeita, Oporto. Price (countries of the Postal Union) per number of at least six sheets 4to, 8 francs. Vol. I, No. 1, March, 1899; No. 2, Aug., 1900.

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The appearance of a fresh journal devoted to their interests is always a matter for satisfaction among anthropologists, and their satisfaction is enhanced when, as in the present case, it appears not as a competitor with other journals in the same field, but to enrich our knowledge with a harvest that is waiting for the labourers. Local causes, which are fresh in our memories, during the latter part of 1899 delayed the appearance of the second part, and as compensation for the delay it is larger and better illustrated than Part I. If the numerous pictures are not all quite so successful as they might be, it would be ungrateful to lay stress on the fact when we consider how the difficulties incidental to a new undertaking have been enhanced by the importation of the bubonic plague.

Among the articles in the parts before us are:—Mycenaean art in North-West Spain; the results of an exploration of tumuli, etc., in the neighbourhood of Seixo; an anthropographic study of the Minho population; the pile-dwellings on the coast of Portugal; education in Portugal; the "villas" of North Portugal; a craniometrical study of the ossuary of Ferreiró; the pottery of Prajo, etc. These are followed by miscellanea, consisting mainly of the transactions of the Figueira Archaeological Society, together with accounts of textile and fishing industries, mills, and other ethnographical material. Then come notes on museums and recent discoveries, and reviews of a number of Portuguese anthropological works conclude the number.

We trust that the path of our new contemporary may in the future be smoother, and that the highly successful beginning may be followed by a succession of numbers no less valuable than those before us.

N. W. T.

PHYSICAL ANTHROPOLOGY.

Physical Anthropology: General.

Waterston.

92 *Developmental Changes in the Human Skeleton from the Point of View of Anthropology.* Communicated by David Waterston, M.D., F.R.C.S.E., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 8th, 1900.

A series of specimens of the long bones of the extremities at different ages of embryonic and infantile life has been collected and examined. The methods employed in the examination were those of anthropometry, namely, osteometry and osteoscopy.

By the former, the relative lengths of the bones of the limbs at different ages have been ascertained and compared one with another, and by the latter it has been found that these bones present some definite and interesting characters. Without going minutely into the rate of growth of each segment of the upper and lower limbs, the general character was shown, and the special features of the bones at different ages was demonstrated by means of lantern slides taken from photographs of the objects. An attempt was also made to ascertain the cause of the special characters found in the bones by investigating the time of their appearance and of their replacement by adult characters.

A comparison was also instituted between the bones of the embryo and those of the lower races of mankind and of the higher apes, both as regards their relative length and their characters.

As it has been shown that the curvature of the spine in the lumbar region is a post-natal development, and one adapted to the assumption of the erect attitude by the infant, it was shown that in a similar way the configuration of the bones of the lower extremity alters after birth, before the infant can stand erect.

Kephalic Index.

Beddoe.

93 *On some Vagaries of the Kephalic Index.* Communicated by John Beddoe, M.D., LL.D., F.R.S., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 8th, 1900.

The great value of the kephalic index has hardly ever been questioned by any school of physical anthropologists. There are of course certain groups of facts the consideration of which tends to raise a doubt of its absolute permanence in any race, such as the occasional occurrence of marked brachycephaly among the remains of primitive dolichocephals, and the substitution unexplained, as yet, of moderate brachycephaly for dolichocephaly in many parts of the Slavonic area. But whether we accept the views of De Lapouge and Ammon as to the transformation of types through social selection, or whether we follow Sergi in the multiplication of permanent types which "au fond" arrange themselves into two great groups, the division of longheads from shorthheads still continues to have great importance. In individual cases, however, far too much is often made of it. Thus, we may have a broad head of a dolichoid type, or, less often perhaps, a narrow head of brachy type. I propose in this little paper to describe two specimens of dolichoid character which lately came in my way, one of which yielded an index which, taken by itself, would have relegated it to the brachy division. One of these immediately followed the other in the course of my work. Both of them, before I had gotten their measurements, had been set down in my mind as of fairly pure Anglo-Saxon breed; but the former one especially struck me as being so, his fair complexion, blue eyes and

pale red hair, together with his general pattern of body, constituting him apparently an exquisite example of the pure dolicho blond.

The facial features in these two subjects are not very much alike, owing chiefly to the greater length and less breadth of the lower jaw in B: the upper part of the face is however nearly identical. B is a west-countryman and probably less Teutonic.

Description.	A.	B.	Measurements.	A.	B.
Individual	Dr. I.	Rev. W.	Kephalic Index.	82.23	78.06
Locality	{ Aberdeen and Northumberland	Somerset	Lengths.	Glabello-maxi- mum	197 196
Complexion	Fair	Fair.		Fronto-inial	194 190
Face	Ovo-Elliptic	Long-Scutiform.		Glabello-inial	192 190
Forehead	Dome	Dome.		Ophryo-maxi- mum.	193 192
Brows	Arched prominent	Arched pronit.		Face, from Nasion.	120 127
Nose	Busqué	Straight.	Breadths.	Fronto-min	105 106
Cheekbones	Moderate	Moderate.		Stephanic	128 131
Chin	Med. prominent	Med.		Zygomatic	133 135
Head	Oval	Oval, high.		Auricular	132 132
Occiput	Rather prominent	Rather promt.		Maximum	162 153
Eyes	Blue	Blue.	Circumference	Mastoid	152 142
Hair	Pale red	Lightish-brown, thin.		Bigonial	114 92
			Area.		
			{ Nasio-inial Transverse auricular. Supraciliar	Nasio-inial	366 358
				Transverse	368 378
				Supraciliar	317 296
			Nasal.		
			{ Length Breadth Index	Length	56 54
				Breadth	36 37
				Index	64 68.5

The longitudinal measurements of the two heads differ very little; but those of A indicate that his forehead is more highly arched and his upper occipital region less prominent than those of B. In fact there is in B a notable degree of what the Germans call *absatzung* of the upper occipital, causing a parieto-occipital furrow. The dolichocephaly is more occipital in B, the auriculo-superciliar are being decidedly larger in A.

But in the breadths A develops a singular anomaly. While all his anterior breadths are either the same or slightly less than those of B, the maximum breadth, which in A is temporal, is greater by nine millimeters than in B, and the mastoid greater by ten. The cause of this has evidently been connected with delayed ossification of the temporo-parietal sutures, along the line of which, especially in their posterior parts, the temporal bones can be felt standing out prominently. The temporo-sphenoid sutures are unaffected, and the auricular breadth, taken in the pits above the roots of the zygomata, just in front of the ears, is consequently the same as in B. Now we may pretty safely say that, but for this protrusion of the posterior part of the temporal bones, the maximum and mastoid breadths in A would have been about the same, or perhaps even a little less than in B, in accordance with the general form of the two crania. In that case the kephalic index of A would have been about 77, or let us say, making the usual allowance, about 75 in the skull, on the confines of

dolichocephaly and mesocephaly, instead of being actually brachycephalic. That the parietal breadth in A was really rather small is confirmed by the moderate dimension of the transverse arc: this is actually much less than in B, who had the parietal eminences well developed. On the other hand, if we imagine the head of B divested of the before-mentioned *absatzung* or protrusion, which probably increases the maximum length by two or three millimeters, its latitudinal index might probably enough be increased by a degree or more. Thus, the index of A being 77, and that of B 79, that of A would be less than that of B by 2, instead of being greater than it by 4, a relative change of 6 altogether between the two.

It may be objected that the peculiarity of the posterior temporal region in A stamps the head form as pathological, and that A should therefore be excluded from appearing in any series of measurements. But if so, should not B also be excluded, by reason of the protrusion of the upper part of the occiput, a reason, by the way, that would exclude all the skulls of His and Rutimeyer's Hohberg type, for they have all that same peculiarity of late ossification of the posterior fontanelle. And what of metopic skulls, in which the increase of breadth generally extends, though in a slighter degree, from the frontal to the other points at which we measure skull-breadth? Scapho-kephalism is regarded as pathological; but minor degrees of it, such as are frequently met with in long roof-shaped skulls, are not and cannot conveniently be excluded from averages, and divers observers will draw the line of exclusion differently.

Of course I cannot, in this brief note, enter on the great question which underlies my whole subject, viz., how far the orderly development of the skull is influenced by variations in that of the brain. Lucæ and others did good work in this field long ago: but I am not aware whether anatomists have given much attention to it of late years.

Cranium.

Dixon.

94 *On certain Markings on the Frontal Part of the Human Cranium, and their Significance.* Communicated by Professor A. Francis Dixon, M.A., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 8th, 1900.

An examination of the frontal region of the cranium shows that, in many cases, grooves or channels are present on the bone, corresponding to the branches of the supra-orbital nerves. These grooves vary very much in appearance, as they may be simple or branched, shallow or deeply cut. They are not infrequently converted in parts of their course into little tunnels. In some cases they are found on one side of the cranium only, in others they occur on both sides; their distribution is very rarely quite symmetrical. Most frequently the grooves occur beneath the outer branches of the supra-orbital nerve, but in many cases they are found beneath the inner branches. The grooves never pass from the frontal on to the parietal bone—across the coronal suture. They often extend upwards from the supra-orbital notch, or foramen, as far as the coronal suture; in other cases they begin inferiorly at a little foramen where some branch of the nerve enters the bone. The openings of these little foramina are directed upwards towards the coronal suture, just as the openings of the nutrient foramina in the long bones are directed towards the end of the bone, where growth is most active and goes on longest.

The presence of these grooves indicates a want of proportion between the growth in length of the nerves and the amount of expansion of the underlying part of the cranium. The nerves might be looked upon as constricting cords which become

depressed in the developing bone as the cranium expands. The constricting portions of the nerves are often limited inferiorly at a point where some little branch enters the bone, and superiorly at the coronal suture, where the deep layers of the scalp are firmly bound down to the cranium. Hence the grooves for the nerves do not cross the coronal suture, and often begin inferiorly at little foramina whose openings are directed upwards. The grooves appear to indicate, in the skulls in which they occur, an excessive development of the frontal part of the cranial wall. In races in whom the grooves are common, and strongly marked, we should expect the presence of a tendency towards increased development and capacity of the frontal part of the cranium; while, on the other hand, in races in whom the grooves do not occur, or are rare, and but feebly marked, we should expect to find much uniformity in the shape and size of the cranium, indicating that none of its various parts are tending towards an increased development. In the purer races of mankind, with marked uniformity in the size and shape of their crania, we should look for the greatest harmony between the growth in length of the overlying structures and the amount of expansion of the various parts of the cranial wall; on the other hand in mixed races we should be more likely to find individuals exhibiting a want of such correspondence in the amount of growth of the superficial and deeper structures. In this connection it is interesting to note that the frontal grooves are almost never found in Australian and Tasmanian skulls, that they are rare among Melanesians, slightly more common among Polynesians, while among Bushmen and Negroes, especially in Zulus and Kaffirs, they are very common, and often extraordinarily well marked. Among Negroes they are present in over 50 per cent. of the skulls examined. In the skulls obtained in the dissecting room they are present in about 41 per cent. of all cases.

Sacral Index.

Cunningham.

On the Sacral Index. Communicated by Professor D. J. Cunningham, M.D., F.R.S., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 8th, 1900. 95

Inasmuch as the true length of the sacral portion of the vertebral column is not indicated by the shortest distance between the apex and base of the sacrum, but rather by the length of the curve formed by the sacral vertebrae, it is proposed that, in making measurements for the determination of a sacral index, "length" should be measured by using a tape along the concavity of the sacral curve, and not by calipers, one limb of which is placed upon the base, and the other on the apex of the sacrum. Breadth (measured by calipers in the ordinary manner) multiplied by 100 and divided by length, measured in the manner indicated, gives the true sacral index.

The curvature of the sacrum may be conveniently plotted by taking a tracing from a strip of soft metal which has been previously adapted by pressure to the front of the sacrum along its middle line. The index of curvature may be expressed by the number derived by multiplying the height of this plotted curve by 100 and dividing by the number corresponding to the true length of the sacrum.

Physiology.

Foster.

96 *A Text-Book of Physiology.* By Professor Sir Michael Foster, M.D., F.R.S. 4 vols. 8vo. London: Macmillan and Co. Sixth Edition, 1900. Price £2 2s. Presented by the Publishers.

This text-book has been so well known for many years as the representative English epitome of physiology, that no notice of it from the standpoint of a general student of this science could possibly be required. Although a knowledge of the groundwork of physiology is a fundamental essential to all physical anthropologists, the sections of widest interest in relation to our science are those contained in Volumes III and IV, dealing respectively with the functions of the central nervous system and of the special senses. In these a brief but comprehensive *résumé* of the structure, both macroscopic and microscopic, of the organs concerned precedes the relation of all well-established facts regarding their function and of the theories based upon them. Of special importance to the anthropologist are the paragraphs describing the framework of physiological psychology under its various aspects, and more especially those which discuss the investigations into the time relationships of cerebral processes, whether simple, such as the mere acknowledgment of a sensation, or complicated, as when a choice or discrimination has to be made between two sensations, or, still more so, as in the more involved mental processes. This is the method which is employed to find the so-called personal equation of individuals, and efforts are also being made, by ascertaining the personal equation of many individuals of different races, to discover whether anything of the nature of a racial equation can be elicited.

In the volume, on the special senses, problems relating to the acuity of sensation among individuals are dealt with, both by Sir Michael Foster himself and by Dr. Rivers. Work is being attempted from time to time on the racial variations, as opportunity offers, in connection with such differences.

Although somewhat lengthy, no simpler, yet at the same time more complete, treatise on general physiology and its kindred problems is to be found in our language.

F. C. S.

Descent of Man.

Morris.

97 *Man and his Ancestor: A Study in Evolution.* By Charles Morris. London: Macmillan and Co., 1900. 8vo. Presented by the Publishers.

This little work gives an excellent epitome of the evidence at present available of man's evolution, its only serious drawback from a popular point of view being a tacit assumption of some knowledge on the part of the reader of the elements, or at least the terminology, of anatomy and physiology. The author begins by a study of vestigial remains in man, showing his descent from a quadrupedal ancestor; then, after a brief discussion of the development of intelligence and the origin of language among the lower animals, summarises the links in the chain bridging the chasm between these and man. He lays great stress on pygmy races, especially in their relation to the negro peoples, but regarding them as preceding the present races in all quarters of the globe. The book concludes by several chapters on the evolution of intelligence and morality in the history of the varieties of our species, the dominant note being that in reviewing this subject we are concerned with man's past rather than his future, which will work out as a resultant of forces of which at present we have scarcely the vaguest conception.

This book can be confidently recommended to all who desire in a short compass a summary of all the known facts bearing on human phylogeny.

F. C. S.

Ethnography: General.

Deniker.

The Races of Man: An Outline of Anthropology and Ethnography. By J. Deniker, Sc.D. London: Walter Scott, 1900. 8vo. pp. xxiii, 611, with 176 illustrations. Price 6s. Presented by the Publisher. 98

In this densely packed volume, which forms one of the *Contemporary Science Series* edited by Mr. Havelock Ellis, the author has attempted an almost impossible task with a fair measure of success. Within the compass of a little over 600 small octavo pages he has contrived "to give in a condensed form the essential facts of the twin sciences of anthropology and ethnography," finding room at the same time for no less than 175 illustrations, which, it may be added, are of almost uniform excellence. M. Deniker, a distinguished member of the brilliant school of French anthropology, has hitherto devoted his chief attention to the physical side of the subject, in this following the precedent of his illustrious associates the late Paul Broca, and de Quatrefages, Dr. Hamy and Dr. Topinard. Hence the section occupied with anthropology in the stricter sense, which is here defined to be the science concerned with "the somatological characteristics of the genus *Homo* whether considered as a whole in the relation to other animals, or in his varieties," is naturally more satisfactory than the chapters dealing with the several ethnical groups and their minor divisions. In the introduction, which is mainly occupied with the usual discussion on such general concepts as "people, nation, tribe, race, species," a sharp distinction is drawn between specific and ethnic groups, and the reader is left to infer that the term *species* as used by zoologists is scarcely applicable to the present human divisions at all. There is of course a genus *Homo*, which, however, consists not of so many species, sub-species, varieties, or races, but of ethnic groups formed by a community of speech, religion, social institutions, etc., but are by no means zoological species, since "they may include human beings of one or of many species, races, or varieties." Thus the ethnic or social groups described in this work under the names of tribes, nations, peoples, and so forth, are regarded as an aggregate of individuals belonging to two or more somatological units. Such units are, however, merely "theoretical types" which are formed by a certain combination of physical characters, and whose actual existence may be established by a careful analysis of a large number of individuals taken haphazard in any given ethnic group. They are entities, or theoretic conceptions analogous to zoological species, but for the most part modified by crossings, hence rarely occurring as perfect types of the somatic units. Moreover, the more cultured the ethnic groups, the more they are found to consist of heterogeneous elements, that is, the more numerous are the somatic units, so that among primitive peoples alone can we hope to find coincidences between the two terms. In fact "those peoples are almost undiscoverable who represent somatological units comparable to the species of zoology." Hence the questions of specific unity, monogenism or polygenism lose much of their importance, are declared to be "somewhat scholastic," and even completely "sterile and futile." Nevertheless it was necessary to dwell upon the author's views on the concepts of species, types, and physical units, because they lie at the base of his scheme of classification, as originally expounded in the *Bulletin* of the Paris Society of Anthropology (June, 1889), and here revived in a modified form (pp. 284 sq.). The twenty-nine "types" or subdivisions of the thirteen "races" in this remarkable scheme, which takes physical characters alone into consideration, are now also called "races," or "sub-races," and disposed under the six subjoined divisions, where it will be noticed that the hair, as in some other systems, is accepted as the chief criterion:—

A. Woolly hair, broad nose (4 races and sub-races).

- B. Curly or woolly hair (4 races).
- C. Wavy brown or black hair, dark eyes (7 races).
- D. Fair wavy or straight hair, light eyes (2 races).
- E. Straight or wavy hair, dark black eyes (4 races).
- F. Straight hair (8 races).

For this scheme it is claimed that it brings together the most salient somatic characters of the several races, while it is admitted that, being dichotomous, it cannot exhibit their exact grouping according to their true affinities. Each race shows some features in common with others even at a distance from it in the table, and in order to exhibit such affinities "it would be necessary to arrange the groups according to the three dimensions of space, or at least on a surface where we can avail ourselves of two dimensions." The curious diagram by which this was effected, and which is reproduced in my *Ethnology* (p. 169), is here replaced by another table (p. 287) which at first sight looks somewhat chaotic, but on inspection is found to include 29 races combined into 17 groups, so disposed that those having the greatest affinities one with another are brought close together. Thus the Bushmen, for instance, are seen from their position to have affinities both with the Negritos (short stature) and with the Negroes (hair, nose); the Dravidians with the Indonesians and Australians; the Turks with the Ugrians or the Mongols; the Eskimo with the Mongols and the Americans; the Assyroids (Armenians, Jews, Kurds, etc.), with the Adriatics (West Europeans) and the Indo-Afghans; and these last with the Ethiopians (my Eastern Hamites) and the Arabs. The arrangement is of course open to criticism from various points of view; but systematists and others will perhaps prefer for the present to study it carefully in the light of the explanatory text, which is both stimulating and highly instructive in several respects. It suggests one broad inference, which, although not drawn by the author, lies at the base of Blumenbach's classical treatise *De generis humani varietate nativa*, and shows almost to the eye how all races merge so imperceptibly one in the other that they collectively form not species but varieties, so that "vix ac ne vix quidem limites inter eas [varietates] constituere poteris."

After establishing his classification, as above briefly outlined, M. Deniker takes up the strictly ethnical section of his theme, devoting a chapter each to the races and peoples of Europe, Asia, Africa, Oceania, and America. This purely geographical distribution is obviously independent of his original scheme, and appears to be adopted merely for convenience of treatment in a work addressed more to general students than to specialists. But it inevitably leads to difficulties, as in the case of the Oceanic Negritos (Aetas, Sakais, Andamanese), who have to be divorced from their natural connection with the African Negritos (Akkas, Batwas, etc.), and "included in the long list of the aboriginal peoples of Indo-China." Here the obsolete term "Minkopis" is unfortunately revived, and the whole section is disfigured by a large number of errors, some rather serious, which should be rectified in future editions. Subjoined are a few of the more important, taken promiscuously from the ethnological part of the volume. The Barabras (Nile Nubians) are said to belong "not only by their language but also by their physical type" to the Arabo-Berber group. But the speech of the Arabs is Semitic, that of the Berbers Hamitic, and that of the Barabras Negro (see Lepsius, *Nub. Sprache* and my *Ethnology of Egyptian Sudan*). Junker is referred to on "the Momvus or Mombuttus, who must not be confounded with the Mangbattus." But Junker separates the Momvus (Momfus) from the Mombuttus, whom he shows to be the same people as the Mangbattus (see my English edition of his *Reisen in Afrika, passim*); and on the same page (440) we read of the "Mangbattus or Monbattus" correctly. "Mehra-et-Reg" (p. 445) is an impossible forma-

tion, and should be *Meshra-er-Reg* (phonetically) or *Meshra-el-Reg* (orthographically). The "Mandarin or northern (Chinese) dialect" is rightly distinguished from "that (read those) of the south," but wrongly connected with "the Hakka speech employed in Kwang-tung." Hakka is in fact one of the primitive forms still current in Kwang-tung and conterminous southern provinces, and quite distinct from Mandarin (Dyer Ball, *Easy Lessons in the Hakka Dialect*). The Kuis of Camboja are spoken of as a distinct people from the Cambojans (p. 393), whereas they are the primitive stock, and call themselves *Khmer-dom* ("Original Cambojans"). In Madagascar "the Arab invasions date back hardly five or six centuries" (p. 471). On the contrary the Semitic elements in the Malagasy language show that the first arrivals date from remote (pre-Muhammadan if not pre-Christian) times (see my *Man Past and Present*, p. 251). The Algonquian *Chippewas* (Ojibwas) are confused with the Athabaskan *Chippewayans* (p. 524); and the Lipans are located in Mexico instead of Texas, their original home, although a few bands have in recent times moved west of the Rio Grande, while others are settled in the Oakland Reserve, Indian Territory. (See Powell's *Indian Linguistic Family*, pp. 54 and 56.) More serious is the statement that "none of the tribes of the New World have a red-coloured skin unless they are painted," which will scarcely commend itself to such careful observers as, for instance, Mr. im Thurn ("very red cinnamon"), and Dr. Ehrenreich ("noch mehr ins Röthliche spielend; etwa frisch gebrannten irdenen Töpfen entsprechend," etc., etc.).

In the chapter dealing with the European peoples a brief review of the "Aryan Question" states the different views in moderate language, and points out that the problem no longer possesses the importance that formerly attached to it. "All we can legitimately suppose is that in the period touching the neolithic age, the inhabitants of Europe were *Aryanised* from the point of view of language, without any notable change in the constitution of their physical type, or probably of their civilisation." This conclusion can scarcely any longer be doubted, though it of course leaves unanswered the question, how the great bulk of the European populations were induced to adopt Aryan forms of speech long before the close of the New Stone Age. Much, however, is gained by the absolute rejection of the old theory, originating with the philologists, that these populations, despite their great physical differences, were all alike of Aryan stock.

So numerous are the differences that M. Deniker is not satisfied with the three broad divisions into *Homo Europæus* (the tall, fair, long-headed northerners) *H. Alpinus* (the medium-sized, brown, round-heads of the central uplands and eastern plains), and *H. Mediterraneus* (the short, variable long-heads of the Mediterranean lands) accepted by Ripley and others. His own scheme, at which he has worked for several years and here sums up, distinguishes six principal and four secondary races, and the reader will be grateful for the small but remarkably clear ethnological map showing the present distribution of these ten varieties. The study of this somewhat intricate arrangement is further facilitated by a whole series of excellent illustrations taken from trustworthy sources.

The work is also enriched by several rather full tables of physical characters—stature, cephalic index, nasal index—which are conveniently brought together in the appendices, and will certainly be welcomed by professional anthropologists. There are also numerous tables of orbital and other indices in the body of the work, which is completed with indexes of authors and subjects, and is clearly printed on good paper and stoutly bound in cloth, while the low price (6s.) should bring it within the reach of a wide circle, and thus help to promote the strangely neglected study of the anthropological sciences amongst the English reading public.

A. H. K.

Child-Study.

Warner.

99 *Mental and Physical Deviations from the Normal among Children in Public Elementary and other Schools.*—Report of the Committee of the British Association for the Advancement of Science, consisting of Mr. E. W. Brabrook (Chairman), Dr. Francis Warner (Secretary), Mr. E. White Wallis, Dr. J. G. Garson, and Dr. Rivers. Drawn up by the Secretary; presented at Bradford, September 4th, 1900; and printed in full in the *Proceedings of the British Association*, 1900 (Bradford). London, John Murray.

The Committee, acting in conjunction with the Childhood Society for the Scientific Study of the Mental and Physical Conditions of Children, have, through the assistance of that society, been able to use the cards recording the "cases with any abnormal nerve-sign," as seen 1892-94; that is, 2,851 boys, 2,003 girls, as found among 26,287 boys, 23,713 girls examined.

As a new method of research these cases are arranged in primary groups containing the children who presented nerve-signs in (1) the face only; (2) the hand only; (3) eye-movements defective only; and (4) a group showing nerve-signs in other parts of the body only.

In making a rapid examination and report on children examined in schools, it may be convenient to classify nerve-cases in four groups as presenting signs in (1) face (defect of expression, overaction of the frontal muscles, knitting the eyebrows, muscular relaxation about the lower eyelid); (2) in balance of the hand or finger twitches; (3) irregular movements of the eyes; (4) in general balance of the head and other parts of the body. Twenty-one nerve-signs have been observed and defined,¹ the cases presenting these signs are grouped in classes under the headings named according to the parts of the body in which they are seen.

To the full Report are appended three tables showing, for the 50,000 children examined 1892-94, all cases presenting one or more abnormal nerve-signs, arranged in age-groups. These three cases are classed in primary groups presenting nerve-signs in the parts indicated only, viz.: (1) the face; (2) the hand; (3) eye-movements; (4) in other parts of the body. The cases are further distributed in primary groups under the main classes of defect.

The total number of children with any class of nerve-signs is obtainable by adding the eight primary groups presenting that class, thus: Among the children 7 years and under, adding the eight groups enumerating signs in the face gives a total of 343 boys, 179 girls. Again, addition of the three groups enumerating signs in face and eye-movements gives a total of 21 boys, 20 girls, with the two classes of nerve-signs.

The numbers in each primary group of nerve-cases are given in the last column of the table appended to the Report, and are distributed again as primary groups according to the main classes of defect observed associated with the nerve-signs. Thus:

Column headed B gives cases with nerve-signs only.

AB=Nerve-signs associated with developmental defect only.

BC=Nerve-signs associated with delicacy only; children pale or thin.

BD=Nerve-signs with mental dulness only.

ABC=Nerve-cases with developmental defect and delicate only, i.e., not dull or backward.

¹ See *Report on the Scientific Study of the Mental and Physical Conditions of Children, based on the examination of 100,000 children*, p. 76. Published at the Parkes Museum.

From the same tables appended to the full Report the compound groups can be formed by addition of the primary groups composing them, and from these the correlations of the classes of nerve-signs with the main classes of defect, can be obtained after the method explained in Dr. Warner's paper, in the *Journal of the Royal Statistical Society*, March, 1896.

Among the nerve-cases here reported on, the relative frequency of nerve-signs in the face, the hand, and in eye-movements is shown to be as follows:—

Age Groups.	Total No. of Cases.		FACE.		EYE-MOVEMENTS.		HAND.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
7 years and under....	742	489	343	179	94	74	300	209
8-10 years	1,229	878	473	250	153	127	690	503
11 years and over....	880	636	317	141	104	58	530	426
At all ages	2,851	2,003	1,133	570	351	259	1,520	1,138

Other researches were made, but when they did not appear to supply useful information the results were not included in the tables. It was thought that there might be a definite association between irregular movements of the eyes and twitchings of the fingers; the facts given below do not support the premiss. Again, the association between irregular eye-movements and overaction of the frontal muscles (frowning) is not very marked, though more frequent than in the last case.

Primary Groups.	Age Groups.					
	7 and under.		8-10.		11 and over.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
Eye-movements and finger twitches only.	—	—	—	—	—	—
Eye-movements and finger twitches and other nerve-signs.	2	1	7	3	2	—
Eye-movements and frontals over-acting only.	7	2	12	2	3	—
Eye-movements and frontals and other nerve-signs.	5	2	16	2	9	2

This Committee, first appointed in 1892, have reported each year¹ and information thus supplied concerning the mental and physical conditions of childhood has afforded evidence in a wide field of research. Among other problems advanced it has been shown that, with certain constitutional conditions of congenital deficiency and acquired defects as found among boys and girls respectively, the status varies in the age-groups. It appears highly probable that the heavy mortality under five years of age, which falls principally on the boys, is largely due to developmental defects, while

¹ The reports will be found in the corresponding volumes of the *Proceedings of the British Association*.

children with such congenital defect who survive add largely to the proportion of the dull and delicate pupils in schools, and to the number of neurotic persons who often fail in health at adult age.

The main classes of defect among children are more frequent with boys, while the girls with defective constitution tend in larger proportion than the boys to ill-health and brain disorderliness.

To summarise problems previously demonstrated, development-defect cases are very frequently delicate and dull. Children with (motor) brain disorderliness are often dull; so are the children who are naturally delicate. Dull pupils often present defect in development as well as delicacy and (motor) brain disorderliness needing special care and training.

Departures from the normal are more frequent among males; but the females with developmental defect or brain disorderliness are more apt to receive harm and to receive less good from their environment than males. This indicates the care required, and is illustrated by the more hopeless condition of female lunatics and criminals.

It has been shown that good effects follow the employment of physical training at school in diminishing the number of children with signs of brain disorderliness and the proportion of dull pupils.

Children in Poor Law and industrial schools are below the average in bodily development and mental ability. It appears that home life and day school training are more advantageous than institution training.

The investigations that have been carried out and study of the distribution of cases of developmental defeat in various localities have suggested that sanitation and the practical application of hygienic principles to school life may lessen the frequency of developmental defects and the proportion of mental and physical weakness and mortality co-attendant.

In conclusion it has been shown by many examples that detailed examination and report on the children in selected schools has proven many points of social and scientific value.

Since this report was drawn up an important mathematical paper "On Association of Attributes in Statistics, with illustrations from the Material of the Childhood Society, etc.," by Mr. G. Udny Yule, has been published in the *Philosophical Transactions of the Royal Society*. The suggestions there made as to statistical methods of presenting correlations are likely to prove most useful in future research.

Charts have been prepared from these Reports by Mr. C. S. Loch and exhibited at the Paris Congress by the Charity Organisation Society.

Microcephaly.

Cunningham.

100 *On the Microcephalic Brain.* Communicated by Professor D. J. Cunningham, M.D., F.R.S., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 8th, 1900.

The brain of the microcephalic idiot may exhibit features which do not merely represent a "fixed" embryonic condition. In one specimen the arrangement of the fissures and sulci is found to approach more closely the ape than the human type, and in almost every furrow some simian character can be detected. These simian characters must not be considered mere foetal conditions rendered permanent. The ape-like condition existing in this brain does not as a whole correspond to that of any one ape, or group of apes, but there is a complicated mixture of features, some of which are characteristic of high apes, while others find a parallel

in the brain of low apes. The microcephalic brain may be regarded as a partial "atavism." So far as its surface markings are concerned, the specimen noted has reverted in part, or wholly, to an arrangement which, in all probability, existed in some early stem-form of man.

Finger-Prints: Classification.

Garson.

A System of Classification of Finger-Prints. By J. G. Garson, M.D., Expert Adviser on Identification of Criminals. Communicated to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 11th, 1900. 101

This system of classifying finger impressions has been devised to be worked in conjunction with classification of records by measurements, such as those of the head and limbs, for the purpose of facilitating search for previous records of criminals. It is also applicable for the classification of small collections of records without the concurrent use of measurements.

The patterns—three in number—which the ridges on the palmar surface of the terminal phalanx of the fingers form, are indicated by the use of the following signs:—

An arch is indicated thus	...	...	...	...	...	...	^
A loop which opens on the left and slopes thus	...	...	...	...	...	...	/
A loop which opens on the right and slopes thus	...	...	...	...	...	...	\
A whorl of any kind, thus	...	...	...	...	...	...	o

These signs, which are graphic representations of the ridge-pattern as it actually appears in the impression of a finger, are used to indicate the finger formula of an individual, which is noted on a prominent part of each record.

For this classification the patterns on the thumb and three following fingers of the right hand are selected, or as many of them as may be necessary; the thumb and forefinger are always required, and when the divisions given by these two fingers are large, the middle finger, or the middle and ring finger impressions are also requisitioned to reduce the size of the divisions.

Two divisions are made by the pattern on the right thumb, according as it happens to be (I) an arch, or either form of loop: (II) a whorl. By the thumb therefore two divisions are obtained.

Each of these two divisions is broken up into four smaller divisions by the pattern on the forefinger according as it is (a) an arch; (b) a loop with the mouth or opening on the left; (c) a loop with the opening or mouth directed towards the right; (d) a whorl.

Of the eight divisions thus obtained no further subdivision is necessary in six cases, namely in (a), (b), and (d) of I division, and of (a), (b), and (c) of II.

Taking (c) of I division, namely, those cases where there is an arch or either form of loop on the thumb, and a loop opening to the right on the forefinger, subdivision by the middle and ring fingers is necessary; this is done by separating the cases when there are loops opening to the right on each of the four fingers, from those in which there is any other combination which may obtain.

Passing on to (d) of II division, namely, the cases in which there is a whorl on the thumb and forefinger, subdivision by the midfinger only is required, into those in which that finger, like the two preceding fingers, bears a whorl and those in which there is an arch or other form of loop on the midfinger.

By this means we get altogether ten divisions which are of approximately equal

size, except (a) of II (that in which the thumb bears a whorl and the forefinger an arch which is the smallest). It can be equalised more or less with the others in the following manner:—In any given number of individuals there will be some cases found (especially if the class of the population from which the impressions are obtained belong chiefly to the labouring class of mechanics), where one or more of the four fingers used in classification have been damaged from one cause or another so that the pattern of the ridges is undecipherable, or one or more fingers of either hand have been partially or completely lost. In adult criminals such cases amount to about 5.6 per cent. In any system of classification it is necessary to provide for such emergencies, but it is not necessary that they be separated from the others in a division reserved specially for themselves. When these are added to (a) II group it is brought up to the level of some of the other groups.

The following is the scheme of classification reduced to tabular form and the percentage of cases in each of the ten divisions is shown in the lowest line:—

Right thumb	Λ / \			O					
Right fore finger	Λ	/	\	O	Λ	/	\	O	
	9·3	13·5	Rt. thumb, middle, and ring fingers		10·8	3·2	9·8	7·9	Λ / \ O
			any other combination on the above fingers			and with damaged and lost fingers (5·6) = 8·8			10·7 9·4
			12·1 7·7						

With the above ten divisions, worked in conjunction with, and secondary to, classification by measurements, sufficient power is available to enable the records of a large number of criminals to be easily manipulated. For example, if only four measurements be used in the tripartite classification which universally obtains (giving 81 divisions) by the use of this decimal subdivision by finger-prints, a total of 810 divisions are obtained, while if five measurements be taken as adopted in England (giving 243 divisions), by the combined system we have increased our powers of effective classification ten times, and obtain no less than 2,430 divisions; and that without putting any strain on either source of classification.

Finger-Prints: Roman.

Turner.

102 *Note on a Mould showing the Finger-Prints of a Roman Sculptor, probably of the Third Century A.D.* Communicated by Professor Sir William Turner, M.D., F.R.S., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 10th, 1900.

While staying lately with a friend in the City of Lincoln, Sir William Turner was informed that when the foundations of the house, which lay on the line of the ancient Ermyu Street, were being dug, bases of Roman columns were excavated. On

examining these closely, the impressions of the finger-prints of the sculptor were very plainly discernible. Specimens of the impressions were exhibited in illustration of the paper, and at the close several members of the audience said that they had observed impressions of a similar kind in connection with columnar remains elsewhere.

Physical Anthropology.

Cross-References.

Other articles in the present volume dealing with special points of Physical Anthropology will be found under Nos. 20 (Egypt); 75 (Malay); 83 (England); 84 (Scotland); 46 (Rotuma); 117 (Skin Marks). 103

PSYCHOLOGY.

Psychology.

Hartog.

Interpolation in Memory. Communicated by Professor Marcus Hartog, M.A., D.Sc., to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 12th, 1900. Published in full in the *Contemporary Review*, October, 1900. 104

Many educational syllabuses that profess to rest on a psychological base assume that the only guidance for action is a sensation which has been memorised by frequent repetition. The mind, however, seems to have the power of classifying the memories of each category apart and in order of magnitude and direction; completing the records of single memories, with what may be compared with an interpolation curve; and even extrapolating on either side: so that, if a suitable response have been learned to a limited number of sensations, a new intermediate sensation will produce a new appropriate response. This capacity for interpolating has been long recognised in various arts, and is known as "faculty," "feeling," etc. It has not, however, been definitely recognised by the psychologist, who has rather asked whether the *conscious* memory and judgment can construct intermediate sensations between those he has learned from experience, than whether there is a power in virtue of which it can recognise the appropriate position of new sensations, or appropriately act on the stimulus of new sensations when they occur.

Similarly with combinations of intermediate sensations the mind can simultaneously act on them and execute the combined appropriate response, in much the same way as the pencil of a tide predicting machine is simultaneously acted upon by the independent wheels. This is shown by the now received fact finally proved by Richet that each mental act takes about $\frac{1}{15}$ second, and any but automatic (*sit venia verbo*) combination and judgment is usually out of the question, from a lack of adequate time.

Illustrations of these views were quoted from the domains of house-keeping, the plastic arts, cards, billiards, and language. It was urged that an *a priori* method of instruction from incomplete premises must be regarded with extreme caution.

Psychology.

Stokes.

On the Perception of Force. By Professor G. J. Stokes, M.A., Queen's College, Cork. Communicated to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 12th, 1900. 105

According to the most generally accepted view, the idea of force is obtained from the muscular sense. It has also been attributed to touch. The most important question is, whether the perception is connected with the motor or sensory nerves.

If the latter view be adopted, it has been thought that the sensation can reveal nothing of the objective cause. As recent investigation seems to compel the adoption of the latter view, the objective character of the perception can only be saved if we admit the presence of an objective character in all sensation. If Wundt's theory of the original indifference of the nerves be accepted, we may yet be enabled to remove the difficulties in the way of admitting such an objective character. The true difference between the perception of force and other sensations will then lie not in the process by which the phenomenon is apprehended, but in the nature of the phenomenon apprehended. We may thus have an apprehension of an objective external reality—the same reality which underlies the phenomena of dynamics. The principle of least action may perhaps explain the directive character of vital and voluntary processes.

Psychology.**Binet.**

106 *The Psychology of Reasoning.* By Alfred Binet. Chicago: The Open Court Publishing Co., 1899. pp. 191. Price 3s. 6d. Presented by the Publisher.

This is a translation from the second edition of Binet's well-known book. The argument, which is designed to show the close similarity of the processes of reasoning and perception, is based on experimental researches in hypnotism. Conclusions based on such researches are now acknowledged by most to be of very doubtful validity owing to the great danger of unconscious suggestion, but no indication is given in this edition of any change of attitude in this respect. The book might also have been brought up to date in other respects; thus the conclusions on p. 46, stated to be very important for Binet's theory, are based on an interpretation which is now generally acknowledged to be erroneous. Nevertheless, the book is very interesting and suggestive. Anthropologists will probably be chiefly interested in the account of the various types of mental imagery, of which M. Binet was one of the first to recognise the importance. The translation has been well done.

W. H. R. R.

Psychology: Child Study.**Warner.**

107 *The Nervous System of the Child.* By Francis Warner, M.D. London: Macmillan and Co., 1900. 8vo. pp. xvii, 233. Presented by the Author.

This book deals with the physical and mental hygiene of the child. It is founded on the extensive researches which the author has made on the abnormal signs accompanying mental defects in children, and is concerned to a large extent with the means by which the defects may be remedied. There are some interesting chapters on the training useful for developing the senses and the elementary mental processes, which should be very useful and suggestive to those who have to do with both normal and defective children. It follows that the book is of practical rather than of scientific interest, but incidentally contains much that may interest the anthropologist.

W. H. R. R.

Child Study.**MacDonald.**

108 *The Experimental Study of Children.* By Arthur MacDonald. Washington, 1899. pp. 214. (From U.S. Education Report, 1897-8.)

This book consists of two chapters from a report of the United States Bureau of Education. The first part is taken up with an account of researches carried out by the author or under his superintendence. Measurements of the head, of strength of grasp, of tactile and thermal sensibility, and of sensibility to pain were

made by Mr. MacDonald on 1,074 Washington children, including coloured children, and the results of these measurements are considered in relation to the nationalities of the children and their abilities in various studies. Unfortunately very few details are given of the methods employed, so that it is very difficult to judge of the value of the observations, but so far as one can gather, the methods appear to have been somewhat rough, and in some cases almost certainly inadequate.

In another investigation, observations on height, sitting height, weight, and circumference of head were made by teachers on 16,473 white children and 5,457 coloured children, and these measurements are considered in relation to the age, sex, mental ability, and sociological condition of the children. The results form a huge mass of detail put together without adequate criticism, and it is extremely difficult to assign the proper value to any of the author's conclusions. A few of the conclusions which are of most anthropological interest may, however, be given, though they must be accepted into reserve.

Dolichocephaly was found to increase as mental ability decreased, dull children tending to be dolichocephalic; the circumference of the head was found to increase as mental ability increased; children of the non-labouring classes were found to have larger heads, greater height, sitting height, and weight, and greater tactile and thermal sensibility than children of the labouring classes; the former also showed greater ability in their studies, but had a higher percentage of sickliness; boys were found to have larger heads than girls, but the latter were more sensitive to touch and heat; the girls were superior to the boys in their studies.

In the comparison of white and coloured children, some interesting, and in some cases surprising, conclusions are given. Coloured girls were found to have a larger circumference of head than white girls, the circumference being slightly larger in the coloured girls than in the coloured boys. White children were found to be taller than the coloured children, while the sitting height of the former was still more in excess, *i.e.*, white children had relatively long bodies. The coloured children were found, by the author's method of testing, to be much more sensitive to heat than white children.

A large mass of detail is given on the ability of the different classes of children in different studies. The children were arranged in those classes as bright, average, or dull, according to the opinions of their teachers. It is in the results so obtained that the most surprising conclusions of the author are to be found. It is, I think, generally believed that the children of negro races do very well at school up to a certain age, beyond which they cease to improve, or may even intrograde. Mr. MacDonald finds, however, that the proportion of bright coloured children increases with age (up to the age of sixteen), while in white children the percentage of brightness decreases except in the mechanical exercises of drawing, manual labour, and penmanship.

From a perusal of some of the tables, it seems as if the coloured children were distinctly superior to the white children in average mental ability; thus 46 per cent. of the coloured boys and 69 per cent. of the coloured girls are entered as bright in all studies, while the corresponding figures for boys and girls of American parentage are only 51 per cent. and 45 per cent. respectively. In the subject of arithmetic 54 per cent. of the coloured boys and 60 per cent. of the coloured girls are noted as bright, while only 44 per cent. of the boys and 37 per cent. of the girls of American parentage are so classed. In what is probably the most advanced of the studies for which data are given, *viz.*, algebra, the superiority of the coloured children appears to be even more marked.

In order to appreciate these somewhat startling results correctly, one would like to give rather more critical consideration than is given by the author to the methods of collecting the results, the personalities of the teachers from whose opinions these statistics are derived, and other possible factors which may have influenced the inquiry.

The book also contains a valuable *résumé* of researches on children both from America and Europe, a useful account of apparatus which may be used in the experimental study of children, and a good bibliography of child study. Notwithstanding its deficiencies as a record of original work, the book should be extremely valuable to workers in this branch of anthropology.

W. H. R. R.

FOLKLORE.

Folklore: General.

Elworthy.

109 *Horns of Honour, and other Studies in the By-ways of Archaeology.* By Frederick Thomas Elworthy. London: Murray, 1900. 8vo. pp. 315, with plates. Presented by the Publisher.

Readers of Mr. Elworthy's earlier book, *The Evil Eye*, will know what to expect from this, the companion volume. He is a careful explorer of the by-ways of archaeology and folklore; he is a deep student of mediæval magic, and his knowledge of the contents of European museums is extensive. His main object has been to collect and sketch little-known charms and votive offerings, and it is one of the most valuable characteristics of his work that he has no preconceived theories, and prefers to leave his drawings to speak for themselves. This volume is principally occupied with the discussion of various horns and hands, but incidentally many forms of popular superstition are considered. His main purpose is to show that earlier forms of ornament are in the main prophylactic. The crescent, he thinks, was used as a protective amulet, and horns, "the outcome of the crescent, developed into a special mark of honour and dignity, which men adopted for their own destruction, as well as the symbol of the most potent protectors." He gives a number of remarkable illustrations of the hands decorated with various symbols which are scattered through the museums of Europe. He seems to be successful in proving that these are not generally *ex voto*; but rather magical amulets intended either as prophylactic or with an erotic significance.

Mr. Elworthy does not pretend to write a scientific treatise, and in some cases, as in that of his interpretation of Jacob's Ladder, his views have been already superseded by Dr. Smythe Palmer's monograph on "Jacob at Bethel." But he has done good service in collecting a mass of raw material for the use of folklore students, and to this extent his book with its excellent collection of illustrations may be safely recommended.

W. CROOK.

Folklore: Animal Superstitions.

Thomas.

110 *Animal Superstitions and Totemism.* Communicated by N. W. Thomas to the Folklore Society, April 25th, 1900. Published in *Folklore*, xi, 3 (September, 1900), pp. 227-267. Presented by the Author.

Mr. Thomas intends to collect the animal superstitions of the whole of Europe, and prefaces his paper by an analysis of the beliefs and practices which we find or may expect to find. This is followed by an analysis of the points dealt with in the paper, which is mainly devoted to the sacro-sanctity of the animal and annual sacrifice at the present day in Europe. The explanation suggested is that these beliefs and customs are relics of a system of totemism. Opening with a recapitulation

of the Irish facts with which others have already dealt, Mr. Thomas points out in an appendix on quasi-totemic survivals that a large number of sagas and popular beliefs seem to be descended from totemism; among them the idea, frequently found on the continent, that the babies are brought by certain animals such as the stork, the crow, etc. This is followed by a list of sacrosanct animals and the localities in which they are taboo, especial stress being laid on the local character of the beliefs in question. The second half of the paper is devoted to the different forms of animal sacrifice still prevailing in Europe—the hunting of the wren, the “Hahnenschlag,” the killing of the first animal of a species seen in spring, etc. It is then shown that many of these animals were ritually eaten, in most cases by the local group (i.e., the villagers in most cases), but in other cases by the kin only. Mr. Thomas conjectures that the latter is the older form of the custom. The eating of cakes in animal form is also referred to as a custom of the same class. The paper concludes with a short discussion of the origin and meaning of the games of Blind Man’s Buff and Cock Warning. These Mr. Thomas explains as relics of primitive sacrifices, in which human beings were perhaps offered in later times; in their original form the victim was an animal and the mark of this animal, worn by the sacrificer or perhaps by all the participants, accounts for the fact that Blind Man’s Buff is known all over Europe by names of animals—Blinde Maus, Blinde Eule, Blinder Bock, etc. The author of this paper then points out that there are other customs which we can best explain by supposing them to be relics of these sacrifices; among others Santa Claus seems to have been originally a sacrificing priest who went round to capture a victim. Female priestesses were probably not uncommon, which may explain the predominance of the female element in witchcraft.

Eclipses.

Lasch.

Die Finsternisse in der Mythologie und im religiösen Brauch der Völker, von Dr. Richard Lasch, in Horn (Niederösterreich). (*Archiv für Religionswissenschaft*, 1900, 97–152.) 8vo. Presented by the Author. 111

Dr. Lasch has compiled an interesting record of beliefs and practices connected with eclipses in all parts of the world. He has paid special attention to the myths current among savage or half-civilised tribes, and it is to be hoped that the modern travellers, on whom he mainly relies, are competent witnesses on this point. In view of the importance of Egypt in the history of astronomical science, it is perhaps to be regretted that the paper does not contain a fuller account of the ancient Egyptian myths about eclipses, and it would appear that in dealing with the children of Israel the author has unduly strained some passages of Scripture. Thus the standing still of the Sun and Moon at the bidding of Joshua is regarded as an eclipse, and the celestial catastrophe which, according to Joel, is to precede “the great and terrible day of the Lord” receives the same simple explanation. The evidence again for Greek myths about eclipses is both late and scanty, perhaps because the heavenly bodies always played a subordinate part in Greek mythology.

Much may be learned, however, from the facts which the author has collected about the beliefs of primitive peoples. Some of these seem strangely consistent with the true theory of eclipses. Thus the Central Australians are said to believe that solar eclipses are caused by the periodically recurring visits of an evil influence called Arungquiltha. This suggests the eighteen years cycle, but the Australian period is more likely to be an imaginary one. The natives of Central Celebes seem to have grasped a more important element in the theory. They regard the Sun as the husband of the Earth, and explain solar eclipses by his adultery with the Moon, who

on these occasions passes before him and conceals him. A similar idea appears in a beautiful myth of the Upper Palatinate, according to which the Sun and Moon are a married couple, who were parted on the bridal night. An eclipse means that they have for a moment come together again, but when the eclipse ends they are once more supposed to have separated.

Dr. Lasch devotes the last few pages of his paper to a classification of the myths, and to an attempt to trace their evolution. On the latter subject it is difficult to be convincing, but his theory is certainly not an improbable one. In dealing, however, with the widespread dragon-myth he fails to show how closely it tallies with the actual phenomena, by which it may have been directly suggested.

J. K. F.

Suicide.**Lasch.**

112 *Die Behandlung der Leiche des Selbstmörders.* By Dr. Richard Lasch. (From *Globus*, LXXVI, 4. Presented by the Author.) Describes the peculiar modes of disposing of the body of a suicide, which are found to prevail among different peoples, and discusses briefly the motives which lead to their adoption. Full references are given throughout to the original authorities.

Rache als Selbstmordmotiv. By Dr. Richard Lasch. (From *Globus*, LXXIV, 3. Presented by the Author.) Supplies an omission noted by the author in the essay of Steinmetz on *Suicide among Primitive Peoples* (*Am. Anthropologist*, vii (1894), 53-60), by collecting instances in which suicide takes place from the motive of revenge. Full references are given throughout.

J. L. M.

England: Folklore.**Boulton.**

113 *The Amusements of Old London.* By William B. Boulton. 2 vols. London: J. Nimmo, 1900. pp. xiii, 272, ix, 263. Price 30s.

This work is an attempt, says the author, to survey the amusements of Londoners during a period which began approximately with the Restoration of King Charles II and ended with the accession of Queen Victoria. It therefore covers a considerable period. It deals with the amusements of Londoners outside their homes, and the list is varied and is interesting chiefly as showing the development in the tastes of the people. It begins with a description of Hockley in the Hole, an establishment of renown which stood in what was afterwards Ray Street, Clerkenwell. Hockley was a theatre of the old type and provided amusement in the shape of bull and bear baiting, dog fights, and contests between gladiators armed with swords, cudgels, or quarterstaves, and miscellaneous entertainments now things of the past. In the last year of the seventeenth century the Grand Jury of Middlesex complained of the impudence of its "professors," who distributed their handbills to the sound of drums, in defiance of the king's trumpeter, who apparently had the monopoly of street music in those days. It is perhaps worth noticing in those days the audiences were willing to endure a long wait before the performances began. "Doors will be open at three and the masters mount at six," says one advertisement, the three hours of waiting before the fight began being spent inside the building, disputes and fights for places occurring during this wait. It would seem from Mr. Boulton's account that the fights with swords were less dangerous than they appeared. The chief object of the exhibition fight was apparently a slashing flesh wound which might produce a good show of blood. Curious, too, are the fights between women at the same place. Challenges were advertised and fights with gloves and swords arranged. Prize-fighters, with the cold steel, were at times assisted by their wives. In spite of the moral enormities of the

old amusements, Mr. Boulton ranks the danger to their exponents as much less than that of the players of a North Country football match of to-day.

The next chapter deals with the tea gardens of London, Spring Garden, Mulberry Garden, Vauxhall, Bagnigge Wells, places of outdoor amusement where eating cakes and drinking constituted one of the principal attractions. From Charles I onward a period of two centuries shows an almost unbroken continuance of *al fresco* entertainments in London. Spring Garden's attraction was a bowling green and "an ordinary of six shillings a meal." This is said to be the forerunner and model of the later gardens. The "ordinary" or "collation" was the great feature of the place. Spring Garden was a convenient halting-place for refreshment on the way to or returning from Hyde Park, where the promenade of the ring, the foot and chariot races were. Pepys mentions visiting Spring Garden with his wife and found things "to eat very dear." The tea gardens were numerous. White Conduit House in Pentonville had its own code of deportment. It was reckoned the mode there to tread on the skirt of the damsel whose acquaintance you wished to make, apologise for your clumsiness, and suggest an adjournment to an arbour for tea as amends. Here, too, Bartholomew, the proprietor in 1754, provided bats and balls for his customers to play cricket in the meadow adjoining. That these tea gardens encouraged the development of games of skill seems clear. Copenhagen House was famous for its fives. A story is told of the origin of fives here. The maid of the tavern, hailing from Shropshire, meeting an acquaintance from the same county, and talking over the game, a diversion of their native place, improvised a fives ball, made an appointment for a day later, and played a game against the end of the house which delighted the onlookers and so started the tradition of fives at Copenhagen House. The very gable where the maid and her friend played their historic game remained the theatre of the famous contests which followed.

Al fresco London, particularly Vauxhall, is represented as charming as it well could be. Many may even be inclined to think that in losing Vauxhall Londoners lost something not yet replaced. Marylebone Gardens in the reign of George III suggests a very pleasant flavour of more reasonable enjoyment. Here was an evening entertainment of good music while the quietly disposed and peace-loving public disported themselves among the ancient trees in the old garden of the Manor House. The "Masked Assemblies," the "play tables," and the "cockpit" are dealt with at some length. This old sport, which had lingered on almost into our own times, is well described by the quotation from Pepys's *Diary*, and particulars are given as to the care and preparation required in breeding the birds. From the cockpit to the play and the opera house is the next step. For this chapter Pepys and Evelyn, Steele and Addison, have been requisitioned, and Mr. Boulton, from the speculations of the two latter, considers the playhouse to have toned down considerably since the days of the former. The manners and customs prevalent at the theatres and the rise of the opera house and its monopoly and use by the upper classes as a kind of social club is recorded briefly.

In the second volume, when writing on the fairs the author comes to the conclusion that our present habit of leaving town in August is not only due to the fact that Parliament rises in the late summer or to questions of sport. The great fairs of the town were the great carnivals to which, in the dog-days, the common people of London rushed. The fairs followed each other in quick succession in Smithfield, Southwark, and Westminster. The fairs, Mr. Boulton considers, were religious in their origin, their development commercial, and their apotheosis an unrestrained indulgence in pleasure or license. The main attraction of Bartholomew's Fair were the dramatic

performances of the regular companies from the West, and it was only when the fair was shortened from fourteen days to three that the more varied attractions of wild animals and rope dancers became popular.

Athletics and games, as we know them, are hardly mentioned in the book, nor has Mr. Boulton attempted to explain the origin or development of any pastime from early custom or belief. The book is pleasant reading and contains a mass of information useful to the general reader, for whom the book has been compiled. The reproductions of contemporary engravings coloured by hand constitute the main attractions of these volumes. They are principally from well known sources. The book is not of scientific value.

A. B. G.

Folklore.

Thomas.

114 *Questions on Animal Superstitions.* By N. W. Thomas.

The following list of questions is an enlarged edition of the list which I have circulated largely in Europe. I shall be glad to receive answers, as complete as may be, addressed to me at 3, Hanover Square. Previous editions of the questions being in circulation, I have not inserted the new questions in their proper order but put them at the end; the arrangement is therefore more or less accidental. The locality, tribe, etc., should be given as exactly as possible.

1. What animals, birds, fish, insects, etc., are said to bring good or bad luck to those who see them? Is it unlucky to see animals (particularly young animals) before breakfast? What animals are said to foretell the birth of a child or its sex?
2. What animals are said to bring luck or ill-luck to the house in which they live?
3. What animals are said to foretell a death?
4. What animals are said to foretell the price of corn, the abundance or otherwise of the harvest?
5. Are the last ears known by the name of an animal? Do people say that an animal is running through the field when the wind blows over the corn?
6. Are birds or animals kept in captivity for luck, to drive away diseases, etc.? Are there any animals which it is considered unlucky to bring into the house? Are any special ceremonies to be performed when you see one of a species for the first time in the spring?
7. What bearing has the colour of the animal on its sanctity, the omens it gives, etc.? Are white animals specially sacred or lucky? Are animals with certain marks sacred or lucky? If so, what are the marks?
8. Are certain species respected locally, or by certain families, i.e., is it forbidden to kill, eat, or touch them, or unlucky to see them or use their ordinary names? Is it believed that by killing an animal of a certain species a human being is killed?
9. Are certain animals eaten only once a year or eaten with special ceremony once a year?
10. Are certain species of animals hunted once a year or killed at popular festivals? Are any persecuted or beaten? Are any animals habitually killed, and for what reason? Are the eggs of certain birds taken and destroyed? If so, how?
11. Are animals or figures of animals carried round in procession, divided among the community, etc.? Are animals or insects sold at fairs once

- a year? Are they bought in order to be set at liberty? Are animals ever set at liberty with special ceremony?
12. Is a man believed to gain certain magical powers of healing, etc., if he eats the flesh of certain animals, touches them, or lets them die in his hand? At what age should this ceremony be performed?
 13. What animals are used in both medicine and magic, and for what purposes? Is any particular time of year especially suitable for killing the animals for this purpose?
 14. How is the sacrificial victim killed, *e.g.*, is it thrown from a precipice into the fire, etc.? Are animals ever killed by being thrown into the air and allowed to fall? Is the victim eaten? What is done with the skin, the skull, etc.? Are cakes made which are called by names of animals and made in the shape of animals? Are they made of any other material? Are they ever in the shape of or provided with whistles? Detail any usages connected with these figures.
 15. Are the souls of the dead believed to take the form of animals? Are they believed to inhabit the bodies of animals? What is believed to happen to the soul if the animal dies in which it is lodged? Are ancestors in animal form believed to protect the fields, etc.?
 16. Are witches, etc., believed to have the power of transforming themselves into animals? Are the familiar spirits of medicine men, etc., believed to be in the form of animals? Are they ever visible to ordinary men? Are wizards believed to send into the souls familiars in the form of animals to devour the living? How does a man become a wizard?
 17. Are certain families, etc., believed to be able to influence certain species of animals, to cure their bites, to be on friendly terms with them, etc.? Are any people believed to be specially indebted for their success, etc., to animals or species of animals?
 18. Are certain species of animals believed to assume human form in other lands, or to assume human form at will? Are any animals believed to be human beings under a curse?
 19. Are certain animals believed to bring the babies, and whence? Are children ever believed to be born without souls, and if so, how do they get them?
 20. Are stories of swan maidens or youths told, or of ancestors in animal form or with animals' ears, etc.? Are stories told of women giving birth to animals?
 21. Do animals figure in any way in birth, marriage, or burial ceremonies? What animals are eaten on these occasions? Are animals hunted, killed, etc., by the wedding guests or others? Do people appear at weddings disguised as animals? Do they imitate the movements or cries of animals? Are corpses exposed for animals to eat them? Is food put on the corpse for an animal to eat?
 22. Are heads or skulls of animals, horns, etc., either real or carved, fixed on the houses, in the fields, etc.?
 23. What animals are found as weather vanes and inn signs?
 24. Are there any games called after animals, in which animal disguises are worn, or in which animals are imitated? Are the movements or cries of animals ever imitated, and for what purpose? Do people ever disguise themselves as animals?

25. Are dead animals buried for superstitious reasons? Is an animal buried annually at the carnival, etc.?
26. Do people take oaths by certain animals? Describe the ceremony.
27. How far is the decorative art based on animal motives?
28. Is the body ever tattooed or otherwise decorated with pictures of animals?
29. Are any ceremonies necessary in hunting certain species? Are the hunters tabu? Are the young hunters initiated?
30. What animals are tabu for (a) pregnant women, (b) the uninitiated, (c) those who have just been initiated, (d) warriors, (e) the whole tribe or clan?
31. Are idols made in the shape of animals, or half-animals, half-men? Are idols covered with the skin of the sacrificial victim? If so, how often? Are gods believed to assume or have the form of animals?
32. Is the life of a man believed to be bound up with the life of an animal? Can such a man be killed only by killing the animal? If not, what is the effect on the animal if the man is killed, e.g., by magic?

Folklore.**Cross-References.**

- 115** Other articles in the present volume dealing with Folklore will be found under Nos. 76 (Malay Magic); 70 (Borneo); 85, 86 (Germany); 53 (Ontario).

MISCELLANEA.**Spiritualism.****Savage.**

- 116** *Life beyond Death.* By Minot Judson Savage, D.D. (Harvard). 8vo. pp. 336. New York, Putnams. 1900. Presented by the Author.

The sub-title describes this book as "a review of the world's beliefs on the subject; a consideration of present conditions of thought and feeling, leading to the question as to whether it can be demonstrated as a fact: to which is added an appendix containing some hints as to personal experiences and opinions."

The question is on the whole soberly and fairly stated, and the author's own conclusions kept distinct and in small compass. It is a pity that no references are appended to the statements in the historical sections, and that no bibliography is given.

J. L. M.

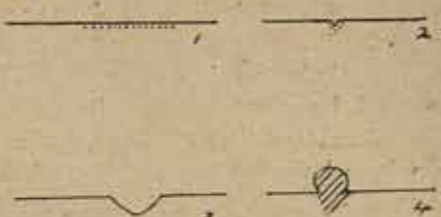
Skin Marks.**Ling Roth.**

- 117** *On Permanent Artificial Skin Marks: a Definition of Terms.* Communicated by H. Ling Roth to the Anthropological Section of the British Association for the Advancement of Science. Bradford, September 11th, 1900.

The marking of the skin in some permanent form is a very wide-spread custom. The Fuegians, Ashantis, some tribes in Central Africa, and the Chinese have no such custom, nor do the cultured races have it excepting in the case of the travelled and the eccentric. Whatever may have been the original ideas or chance circumstances which may have brought it into existence, ultimately its objective became manifold. Amongst Maori women it was as much a social obligation as a means of ornament; among the Maori men it was a sign of personal prowess as well as indicative of high birth; the chins of the Esquimaux girls are marked to show they have arrived at a marriageable age, while the Ainu women's lips are operated upon to show they are

married; the Sinagauos, of New Guinea, mark their breasts to show they have killed enemies; the Burmese and some Congo tribes are figured to protect themselves from evil spirits; other Congo peoples have skin designs to indicate the tribes to which they belong and so on. Whatever form the marking may take, it is intended to be permanent, that is to say, to last as long as the life of the individual, although occasionally to meet this view it has to be renewed.

It is to be expected that peoples living so far apart under very dissimilar circumstances should develop various methods of permanent skin marking. The Tasmanian, with his rude stone implement still in the early Palæolithic stage, could not produce what the Samoan could with his finished pricking-tool. Hence, quite apart from any question as to the evolution of designs we find extremely different methods followed in order to insure the desired permanency. There appear to be four such methods:—



DIAGRAMMATIC SECTIONS OF THE OUTER SKIN, TO SHOW THE DIFFERENT RESULTS OF THE FOUR METHODS DESCRIBED.

1. The Tahitian method first described by Lieutenant Cook and Mr. Joseph Banks under the designation *tattaw*, is the one so familiar to us to-day on the arms of our sailors and soldiers. In this method the skin was pricked by tapping with a piece of wood on an instrument having the shape of a miniature hoe with serrated edge, and the colouring matter was either pricked in at the same time or rubbed in immediately the pricker had done its work. The result was that when the operation was completed a series of blue spots in line were to be seen and when healed the skin resumed its original smoothness.

2. In New Zealand, besides making use of a pricker in a manner similar to that followed in Tahiti, the Maories employed a miniature adze-like instrument with a cutting edge like that of a very narrow chisel; this chisel was, like the pricker, driven into the skin by tapping. The result, however, was not the same for instead of the series of fine holes, dots under a smooth skin, the result was a series of continuous shallow grooves said to have been deep enough to bed a pin in. In this operation, therefore, in which pigment was likewise used, the margins of the wounds inflicted did not heal evenly with the surface of the skin, but the grooves remained for life. The natives call this work *moko*, a word which was first made known to Europeans by Mr. Joseph Banks, the companion of Lieutenant Cook.

3. Similar to the *moko*, but with grooves deeper and wider and generally without the insertion of any pigment (the Fantis and Accras are sometimes with and sometimes without pigment) is the skin deformation of the West African who probably carries the incisions into the true skin and not merely into the deep layers of the cuticle. This is done with a knife, bone, or hard wood chisel and not by tapping a chisel as was done by the Maori.

4. Finally we have those curious raised marks of the Tasmanians, Australians, and Melanesians generally, of the Central Africans, and, I believe, of German students. In this case the cuts are made with sharp-edged stones or special cutting instruments and are for a period continually re-opened, or irritated by the insertion of vegetable juices, sand, etc., hence an abnormal amount of reparative action takes place and they do not heal naturally as a healthy concave scar, but develop, instead, into nodulous growths, sometimes of considerable size.

From the description of the four methods it will be seen they are very distinct

from one another, yet in spite of this distinctness both eminent travellers and anthropologists speak of them in indefinite terms. Generally speaking they are all called by the one name "tatuing." Sometimes a distinction is made and we have the words "scar tatuing," "raised cicatrices," "*cicatrices saillantes*," but there has been up to now, practically with few exceptions, no definite nomenclature followed in describing the various methods of skin deformation. Even the editors of the *Anthropological Notes and Queries*, third edition, make no proper distinction between the methods: the word "tatuing" is made to cover both tatuing and amoko, and the word "cicatrice" is apparently intended to cover the third and fourth methods, although the reference to the third method seems to be only alluded to indefinitely by the word "incision." Miss Buckland divides skin marking into cicatrices and tatu marks, while in Joest's celebrated work I am unable to find any classification. Dr. Deniker, following Dr. Bazin, divides the marks into "tatuing by incision" and "tatuing by puncture," but this naming besides being an incorrect use of the word tatuing does not sufficiently explain the differences in the four methods above described. All this is very unsatisfactory and I venture to think the distinct differences shown merit a special name for every one.

The two first named processes having already each a name, *tatu* and *moko*, of native origin and distinct meaning, should be retained. For the third method I would suggest the word *cicatrix*. It may be objected that there is very little difference (I am not referring to any supposed similarity of design) between the second and third methods described, but when we consider their distinct places of origin, that one has probably been evolved from tatuing while the other has not, and also that the one is a more delicate operation than the other it is better to treat them as distinct methods. For the fourth method I would suggest the well known pathological term *keloid*. The above four terms, viz., *tatu*, *moko*, *cicatrix*, and *keloid* are all easily inflexed, can be used as verbs and have the advantage of being adaptable as technical terms to the French, German, or Italian languages and so can become of international use. By their means, we shall understand at once what a traveller intends, and the incorrect and misleading application of the word *tatu* will cease.

Hawaii: Featherwork.

Brigham.

118 *Memoirs of the Bernice Pauahi Bishop Museum of Polynesian Ethnology and Natural History*. Vol. I, No. 1, *Hawaiian Featherwork*. By William T. Brigham. 4to. pp. 82, and 15 plates. Honolulu, 1899. Presented by the Author.

This monograph is the first work issued from the Bishop Museum Press. Professor Brigham is to be congratulated on the exhaustive nature of its contents and the excellence of the illustrations, which number 115 in the text and 15 plates, two of which are coloured.

The use of feathers, he says, as a personal adornment is widely spread among native races, so that whichever way the inhabitants of the many groups scattered over the Pacific Ocean entered that area, they would most probably bring some knowledge of featherwork with them.

Professor Brigham begins by showing the means by which the feathers were obtained on the Hawaiian Islands, and gives a list of the birds which furnish them; he then goes on to make the fullest extracts from the earlier voyages that can throw any light on the subject. Beyond these accounts very little information about Hawaiian featherwork can now be obtained, as the art has so long ceased to be practised.

The various articles coming under the title of featherwork are in turn each fully described and as full a list as possible of all known specimens given. These articles consist of *leis* or strings of feathers worn in the hair, or in later times about the neck; *kahilis*, or plumes of feathers used as royal insignia; *ahuula*, cloaks or capes worn on state occasions by people of high rank; *mahiolo* or helmets designed for protection as well as ornament; images of the god *kukailimoku* represented by a grotesque human head, consisting of a featherwork covering on a basket-work foundation; together with a few other specimens such as a temple oracle or *anuu*, an interesting Cook relic in the Hof Museum at Vienna; and two mat-like objects in the British Museum (Plate VI), the origin and locality of which is very doubtful. Professor Brigham thinks that if these are Hawaiian, they might possibly have been used as mats on which the offerings to the idol were placed.

With a Director as energetic as Professor Brigham, and one so well versed in the ethnography of the Pacific Islands, we shall look forward with real pleasure to further contributions. J. E.-P.

Hawaii: Museum.

Brigham.

Bernice Pauahi Bishop Museum, Honolulu, Hawaiian Islands. By Professor Brigham. Honolulu, 1900. 8vo. pp. 79. **119**

Under the heading of "Occasional Papers," Professor Brigham, as Director of the above museum, has just issued his second annual report for the year 1899. Although the museum has, since its foundation in 1889, been twice enlarged to accommodate its ever growing collections, once by the addition of the large Polynesian Hall, yet at the end of 1898 it was found necessary to make arrangements for more than doubling its then present size. This last addition, which is now nearly completed, is due to the generosity of Mr. Bishop and is intended to contain the Hawaiian collections, as well as a large workroom for photographic purposes, and for the arrangement of large casts descriptive of Hawaiian life, and of models of Kilanea and of an ancient temple (*heiau*).

This gives some idea of the rapid growth of this institution under the able directorship of Professor Brigham.

That portion of the report devoted to ethnology contains illustrations of the more important acquisitions during the past year, also an interesting paper (illustrated) on "The Mat Sails of the Pacific," by John F. G. Stokes, assistant in the museum. Another assistant, Mr. Allen, furnishes a paper on "The Ray Skin Rasps from the Gilbert Islands," also with an illustration. J. E.-P.

Proceedings.

Anthropological Institute.

A Summary of the Proceedings of the Anthropological Institute of Great Britain and Ireland (continued from *Miscellanea*, 1900, No. 10.) **120**

Huxley Memorial Lecture, November 13th, 1900.—In place of an Ordinary Meeting of the Institute, a Special Meeting was held on the above date in the Lecture Theatre of the Museum of Practical Geology in Jermyn Street, when the Right Honourable Lord Avebury, D.C.L., LL.D., F.R.S., delivered the first Huxley Memorial Lecture.

The Chair was taken at 8.30 p.m. by Mr. C. H. Read, F.S.A., President of the Institute.

Lord Avebury delivered his lecture on "Huxley: the Man and his Work," which will be found printed in *Nature*, vol. lxiii, pp. 92, 116 ff.

The President presented to Lord Avebury the Huxley Memorial Medal in platinized silver.

Sir John Evans, K.C.B., ex-President of the Institute, moved a cordial vote of thanks to Lord Avebury for his lecture. Sir Henry H. Howorth, K.C.I.E., seconded the motion, which was put and carried by acclamation.

Lord Avebury briefly replied, and the Meeting adjourned.

121 *Extraordinary Meeting, November 22nd, 1900.*—Mr. W. Gowland, F.S.A., in the Chair.

Mr. D. Randall-MacIver read a paper "On the Berbers of Algeria, and their connections with Prehistoric Egypt."

Mr. Anthony Wilkin exhibited, in illustration of the paper, a large series of lantern slides from photographs taken by himself, and added a few comments on the paper. The paper was discussed by Mr. Myres and Dr. Garson. A vote of thanks was proposed, and carried unanimously.

122 *Ordinary Meeting, November 27th, 1900.*—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the Meetings of June 12th, November 13th, and November 27th were read and confirmed.

The election of the following Fellows was announced:—Professor W. Ridgeway, M.A., Caius College, Cambridge, Messrs. W. W. Skeat, M.A., Cambridge, N. C. Macnamara, 13, Grosvenor Street, W., E. C. S. George, C.S.I., Upper Barma, and Captain Stanley S. Flower, Cairo.

The President described certain objects exhibited on behalf of Mr. Alfred Sharpe, C.B., H.B.M. Commissioner of Nyasaland, namely:—

- (1) A wooden stool supported by a carved figure of a woman in native style, showing characteristic headdress and prominent keloid scars, from Angoni Land.
- (2) A double bell of iron, without clappers, used to announce the approach of travellers to a village.
- (3) A perforated stone implement of hammer-like form.

The thanks of the Meeting were expressed to Mr. Sharpe for his interesting exhibit, a further account of which, with illustration of No. 1, will be found in *Man*, 1901, No. 39, Plate D.

Professor E. B. Tylor, D.C.L., F.R.S., read extracts from a paper by Mr. J. Paxton Moir, of Hobart Town, on "Stone Implements from Tasmania," and exhibited a number of specimens. The paper, which is printed in the current volume of this *Journal* (vol. xxx, p. 257), was discussed by Mr. H. Balfour, Dr. Garson, Mr. Oldfield Thomas, and the President. Dr. Tylor replied. A vote of thanks was proposed to Dr. Tylor, and to the author of the paper, and was carried unanimously.

123 *Ordinary Meeting, December 11th, 1900.*—Mr. C. H. Read, F.S.A., President, in the Chair. The Minutes of the previous Meeting were read and confirmed.

The election of the following Fellows was announced:—Messrs. A. W. Withers, 21, Lichfield Road, Kew Gardens, and V. F. Bryce, 47, Duke Street, St. James's.

The Secretary read a list of the books presented to the library since the last Meeting of the Institute.

On behalf of Dr. R. W. Felkin, the President exhibited and described a number of weapons from the south-west side of Lake Tanganyika.

Mr. J. W. Crowfoot, M.A., read his paper on "Survivals among the Kappadokian Kizilbash (Bektash)," which was illustrated by lantern slides, and is printed in the current volume of this *Journal* (vol. xxx, p. 305). The paper was discussed by Sir Charles Wilson, Sir Thomas Holdich, Dr. Garson, and Mr. Gomme. The President proposed a vote of thanks to Mr. Crowfoot for his paper, which was carried unanimously.

Switzerland: Physical Anthropology.

Pittard.

Étude de diverses séries de crânes anciens de la vallée du Rhône (Valais.) Eugène Pittard, Neuchâtel, 1899.

124

This monograph is one of a long series which is rendering our knowledge of Swiss craniology both extensive and peculiar. Although racial admixture has occurred in Switzerland as elsewhere in Central and Western Europe, records are preserved in the ossuaries of the mountain valleys in a state of purity unequalled in other countries. M. Pittard has studied 422 skulls from various villages in the upper Rhone valley, constituting one of the most extensive series available up to the present time. The author divides his monograph into two parts, the first containing observations of an ethnological character, the second those having a more special bearing on comparative anatomy. The skulls naturally divide themselves into two series, a brachycephalic with characters attaching them to the Celto-Ligurian type, and a dolichocephalic of Kymric or Germanic affinities, crania of intermediate characters being of course also found.

At first sight it seems tempting to suppose that an original brachycephalic population of Rhaetic Celts was invaded by a dolichocephalic people, the Burgundians, Alemanni, or Franks, as occurred in the Rhine valley, but M. Pittard carefully points out that it is not possible to say at present what is the origin of the dolichocephals found mixed with the larger number of brachycephals, nor even which of the two were the first occupants of the Rhone valley.

The following are the author's conclusions:—

1. The ancient skulls of the Rhone valley are for the most part brachycephalic, leptoprosopic, mesorrhine, and megaseme.
2. By all their characters they are to be assigned to the Celtic type.
3. They have given to this district its present ethnic type.
4. The brachycephalic skulls have a longer face, larger subcerebral angle, and smaller parietal and occipital regions than the dolichocephalic skulls found in this district.
5. The weight, cranial capacity, diameters, curves, and auricular angles are absolutely greater in male than female skulls.
6. Relatively the female skulls have a larger capacity than the male. The female skulls are relatively larger in the frontal and occipital regions, the male in the parietal regions.

Full details are given in the text of the measurements and characters of all the skulls described, and full references are given to similar observations on the crania of other races.

J. S.

Africa: Livingstone.

Roy. Geogr. Soc.

125 *A Memorial to Dr. Livingstone:* abstract of a communication printed in the *Geographical Journal*, xv, pp. 636-9 (June, 1900).

An interesting relic of the great African explorer has recently come into the possession of the Royal Geographical Society, by whose courteous permission the photograph which is appended is reproduced. The tree at the foot of which Livingstone's heart was buried by his faithful native followers in 1873, was found not long ago by Mr. Weatherly to be in a precarious condition; and the Royal Geographical Society at once took steps to secure the removal of the section of the tree which bears the commemorative inscription, for safe keeping in this country. Through the good offices of Mr. Alfred Sharpe, the British Commissioner in Nyasaland, and of Mr. Robert Codrington, the representative of the British South Africa Company in the



Baugweulu region, the section of the tree has been transported to England, and is now to be seen in the house of the Royal Geographical Society. The inscription runs as follows:—

"David Livingstone. Died May 4, 1873. Chuma. Sonza. Muiasere. Uchopere."

Subsequently the spot where the tree stood has been marked by an obelisk of concrete, twenty feet high, surmounted by a cross, and adorned on its four faces with commemorative inscriptions. Representations of this monument, and of the tree before it was cut down, will be found in the *Geographical Journal* on p. 636 and p. 638 respectively.

J. L. M.

Tasmania.

Ling Roth.

The Aborigines of Tasmania. By H. Ling Roth; assisted by Marion E. Butler and Jas. Backhouse Walker, with a chapter on the Osteology by J. G. Garson, M.D. Preface by E. B. Tylor, D.C.L., F.R.S. Halifax: King and Sons, 1899. Second edition, revised and enlarged, with map. 8vo. pp. XIX, 228, CIII. Price 21s. nett.

126

Mr. Ling Roth has made good use of the time that has elapsed since the appearance of the first edition of the *Aborigines of Tasmania*. The work has not only grown considerably but has also been subjected to a thorough-going revision. Among the additions are a map, two new vocabularies, and an alphabetical Tasmanian dictionary to the vocabularies, which greatly increases their value. In the first edition Bonwick's work was virtually ignored. Bonwick seems to have printed a good deal of material without making sure that it referred to the Tasmanians. Mr. Ling Roth now deals with Bonwick's statements seriatim, and shows that we have reason for mistrusting what he tells us. Increased knowledge has caused Mr. Ling Roth to mistrust some of his own earlier information; as a result he has withdrawn two illustrations of basket-work which he now believes to be of Australian origin. In view of the attention which has been given to the subject of late the chapter on stone implements is of special interest. It seems clear that ground stone implements were known to the Tasmanians; why they adhered to the ruder form is not clear; if it was from a disinclination to expend much time on the preparation of them we may also infer that the forms which they did use were not highly specialised, and that an elaborate classification of specimens rests on an unsafe foundation.

If there is one point on which we should be disposed to quarrel with Mr. Ling Roth it is the size of the index. It is really an excess of modesty to give only four pages to index a book of this size and character. In other respects the book is excellently got up. We have observed one misprint that has been passed over; p. 182, line 3, for *affirmity* read *affinity*.

N. W. T.

Physical Anthropology.

Stratz.

Die Schönheit des weiblichen Körpers. By Dr. C. H. Stratz. Achte Auflage. Stuttgart, 1900. 8vo. pp. xii, 268.

127

This little book, which is admirably got up and illustrated, is dedicated by its author to mothers, doctors, and artists—to mothers because it professes to show the ill effects of tight lacing; to doctors because some of the effects of disease on the human figure are depicted in it. In selecting examples for illustration the author has used great artistic judgment; disease, in this country at any rate, does not often leave its victims with their beauty so little impaired. The dedication to artists is of course natural, the greater part of the book being taken up with photographs from nature of celebrated models of varying nationality posing in artistic attitudes, each being supplemented by a canon of proportion based on the figure represented. The body as a whole and its component members receive individual and detailed consideration in the text, which contains much valuable information as to the canons adopted at different times by all well recognised schools of art. On the whole, as the author seeks after the ideal rather than the average, the book should be of greater use to the artist than to the anthropologist.

F. C. S.

Celebes: Ethnography.**Dresden Museum.**

- 128** *Publicationen aus dem k. Ethnographischen Museum zu Dresden: XII, W. Foy, Schwerter von der Celèbes See.* Dresden, 1899. fol. pp. iv, 17, with 6 plates.

Dr. Meyer may well be proud of the series of monographs published under his direction. The gratitude he has earned is, at any rate in England, not wholly unmixed with envy at his happy lot. English officialdom, so far as it condescends to recognise ethnography at all, regards it as an inconvenient appendage to the British Museum, not on any account to be encouraged. And as for encouraging inquiries into such frivolous subjects as the mental constitution of the peoples it is called upon to rule, the very idea is enough to freeze the blood of the average civil servant. Other countries are more enlightened. They support Bureaus and Museums for the systematic study of mankind; they encourage those who come in contact with native races to record all that comes to their ken; and in Germany more than one officer in the navy has received a course of instruction in Anthropology to fit him to do his work of observation thoroughly when his opportunity comes. England hardly knows how medieval it is. We can hardly hope for an enlightened government, but our national pride might forbid that other nations should be permitted, with infinitely inferior opportunities and resources, to outstrip us and put us to shame. We can only hope that the day will soon come when Dr. Meyer's handsome series will be permitted to have a rival in English official publications.

N. W. T.

Ethnography.**Dresden Museum.**

- 129** *Abhandlungen und Berichte des k. Zoologischen und Anthropologisch-Ethnographischen Museums zu Dresden, Festschrift, 1899, No. 3. Zur Timor Ornamentik, von W. Foy und O. Richter.* 4° pp. 14, with 38 blocks in the text. No. 5. *Die Volks-Stämme Neupommerns, von R. Parkinson.* 4° pp. 14, and one plate.

The first of these contributions is a discussion of a single element in the ornamentation of Indonesian peoples—a continuous pattern found on bamboo boxes in Timor, of which the Dresden Museum possesses a large and valuable series. No work more useful or necessary can be imagined than the production of monographs of this nature, distinguished as they are by thoroughness and sane judgment. The author believes that the basis of the pattern is the widely distributed lizard ornament; they recognise that further enquiry is necessary in two directions, firstly as to the occurrence of this pattern on other objects and secondly of the meaning and types of Timor ornament in general.

Mr. Parkinson explains the racial relations of the tribes of Neu-Pommern. He distinguishes two tribes in the Gazelle peninsula; one of these is also found in New Mecklenburgh, the remaining tribes of the islands are related to their New Guinea neighbours. Mr. Foy, who has since published some of the ethnographical material in the *Publicationen* (vol. xiii) of the museum, discusses in a note the bearing of Mr. Parkinson's information on views put forward by other writers. The plate is as usual excellent.

N. W. T.

Canada.**Bourinot—Rimmer.**

- 130** *Canada under British Rule, 1760-1900.* By Sir John G. Bourinot, K.C.M.G., LL.D., Litt.D. Cambridge Historical Series. 8vo. pp. xii, 346. 8 maps. Price 6s.

Memorandum on the Legal Status of British North American Indians. Colonial Reports. Miscellaneous, No. 15. pp. 22. Price 1½d.

After an introductory chapter on the French régime, lasting from 1534 to 1760, Sir

John Bourinot, whose high competence to deal with the subject is universally admitted, traces in a wonderfully interesting manner the beginning of British rule from the foundation of Nova Scotia to the passing of the Quebec Act, the effects of the American Revolution and the action of the United Empire Loyalists, the gradual development of representative institutions up to the breaking out of the war between Great Britain and the United States in 1812, the evolution of responsible government in the quarter of a century which followed, and the new era of colonial government which set in during the first thirty years of the Victorian Era. He then describes the evolution of confederation from its first proposal by Chief Justice Smith, of Quebec, in 1789, to its successful accomplishment in 1867, and the progress of the Dominion of Canada to the present time, concluding with a view of Canada's relations with the United States, and her influence in Imperial councils since the separation of those States from the mother country. Two useful appendices supply a comparison in parallel columns of the constitution of the Dominion of Canada with that of the Commonwealth of Australia, and some bibliographical notes on the most accurate and available books and essays on the history of Canada. We must dissent entirely from one passage, in which Sir John Bourinot allows himself to speak of "Tom Paine, a mere adventurer." He cannot have read the life of that remarkable man, with all the evidence of his self-sacrificing character and far-seeing judgment accumulated by Dr. Moncreux Conway, when he referred to Thomas Paine in these terms. There is little of direct anthropological interest in the volume, but it contains many incidental notices of the native tribes that are worthy of consideration.

The Imperial House of Commons having asked for information in regard to the disabilities and restrictions imposed upon British Indians in Canada, Lord Minto referred the matter to a Committee of his Privy Council, who instructed the Superintendent-General of Indian Affairs to prepare the information desired. He furnished in answer a memorandum drawn up by Mr. Richard Rimmer, the Law Clerk of the Department. From this it appears that in the province of Ontario 20,000 Indians hold not less than 1,144,000 acres of land; in Manitoba and the North-West Territories 21,000 Indians have 3,080,000 acres; in British Columbia 25,000 Indians have 714,000 acres; in Quebec 11,000 Indians have 215,000 acres, and elsewhere in the Dominion 33,000 Indians have 93,000 acres, making a total for the whole Dominion of 100,000 Indians and 5,240,000 acres of land. A portion of these reserves in Ontario, extending over 675,000 acres, was appropriated in 1784 by the Crown to the Confederacy of the Six Nations in recognition of their loyalty during the American War. The law in relation to Indians is contained in the Revised Statutes of 1886, cap. 43, and has since been several times amended. It contains provisions by which an Indian and his unmarried minor children may be "enfranchised, and cease in every respect to be Indians of any class within the meaning of the Act, or Indians within the meaning of any other Act or law." By sect. 114, the celebration of certain festivals, dances, or ceremonies whereat presents are made, or human or animal bodies are mutilated, is made an indictable offence. By the Criminal Code, everyone who steals or unlawfully injures or removes any image, bone, article or thing deposited in or near any Indian grave is guilty of an offence. There is no statutory provision against an Indian as such being elected or sitting and voting as a member of Parliament. Indians enjoy certain exemptions from the game laws.

E. W. B.

Museums: Leiden.

Schmeltz.

131 *Rijks Ethnographisch Museum te Leiden: Verslag van de Directeur, etc.* s'Gravenhage, 1899. (Director's Reports (a) Jan. 1st-Sept. 30th, 1898; (b) Oct. 1st, 1898-Sept. 30th, 1899.) pp. 34. 8vo. Frontispiece and Plates. Presented by the Author.

These Reports contain a full descriptive list of acquisitions for the period which they cover, arranged in geographical order; together with a summary of the administrative work of the year.

The first Report, for the period Jan. 1897 to Sept. 1898, is accompanied by sixteen photographic plates, representing the following objects, numbered successively and described in the text:—*Java*—(1) Wajang dolls, of plaited grass, (2) a *sirik*-shears of damascened iron with geometrical ornament in silver wire. *Bali*—(3) kris, with human hair covering on the handle. *Dammar Islands*—(4) wooden figure of a goddess, on carved background. *Tenamber Islands*—(5) woman's hair-comb, with carved ornamentation. *Japan*—(6) votive model of a house, with furniture, etc., (7) temple ornaments, (8) temple frieze, representing (8) dragons among clouds, (9) musical instruments among clouds. *China*—(10) model gate of honour. *Tibet*—(11) mask of the king-devil, (12) bronze figure of the founder of Lamaism, (13) figure of Avalokita, (14) Bhairava lamp. *Congo State*—(15) tobacco pipe in form of an animal, (16) wooden cup carved as a human head. *Benin*—(17) carved elephant's tusk, (18) bronze cock very finely modelled, (19, 21, 22) bronze sockets for elephants' tusks, in the shape of human heads, (20) bronze plaque with figure of an armed man, rosettes in background, (23, 23a) two-pronged butt-pieces and ornamental points of spears, perhaps from Benin, but not certainly. *Guatemala*—(24) waist-cloth, embroidered with figures of men and animals. *British New Guinea*—(25) wooden dance-shield with grotesquely conventional human figure. *Admiralty Islands*—(26) gourd lime-box, (27, 28) carved handle-ends of wooden spatulae, (29, 30) combs of various patterns, (31) wooden bowl, (32, 33) long-handled ladles of cocoanut, (34) obsidian knives, (35) thrusting weapon carved with human figures with double point of *Trigon*-spines. Masks (38, 40) from *New Hanover* (36), *New Ireland* (37), house-carving, *Kaan Island* (38), *Sir Charles Hardy Island* (39), and *Solomon Islands* (40); from the *Solomon Islands* come also (41, 42) prow ornaments, (43) fetish figure, and (44) specimen of carving, a grotesque human figure, like those on the paddles.

In the second Report, the frontispiece, representing Mus. Ethn. Lugd. Bat. (Inv. 417/82.101.102), is not described. Plate I represents a winged dragon-figure of wood, coloured red and gilded, from *Bali* (Inv. 1216). Plate II shows (1) a ceremonial axe with "anchor shaped" blade of ground stone, lashed to a short handle from *Brazil* (Inv. 1184/1, see p. 14, and 2-3), two rude children's dolls made of clay, hair, and wood, with long club-like bodies, knob-heads with round eyes inlaid, and voluminous mop of hair, from *East Africa* (Inv. 1198/16-17: see p. 10-11). Plate III represents (1) a large wooden bird with outspread wings, the upper side ornamented with seeds and feathers set in pitch; said to be used as a head-dress in a dance, from the south coast of Dutch *New Guinea* (Inv. 1222/3, see p. 15); (2) a bamboo vessel for palm wine with a cover in the shape of a bird's head, of which the beak forms the spout; from *Lombok* (Inv. 1208/1, see p. 6); (3) another wooden bird like Pl. III, 1, given in 1896 by Baron van Hoëvell as a "prow ornament," but probably, like III, 1, a dancing head-dress (see p. 16, and *Int. Arch. f. Ethn.*, X 18), from *Torres Straits*.

J. L. M.

Abyssinia.

Wylde.

Modern Abyssinia. By Augustus B. Wylde. London, Methuen, 1901. Svo. 132 pp. 506, with map. Price 15s. nett.

This is a book which contains a great deal of information, but unfortunately very little of it bears directly on anthropology. The author has been for a quarter of a century more or less associated with the country about which he writes, and as vice-consul for the Red Sea was in an advantageous position for the collection of information. He seems, however, like too many others, to have regarded the mental life of the races with whom he has come in contact as a thing of no interest; he positively apologises for having found superstitious stories amusing, and tells us he regards superstitious persons as unreliable and partly insane. However admirable this attitude may be *à priori*, a strong-minded person of this type is hardly likely to bring home valuable material for the student of comparative religion. It must not be imagined, however, that Mr. Wylde's opinions are an outcome of mere vulgar prejudice; his remarks on missionaries and the native clergy are enough to clear him of any suspicion of insular pride.

Of anthropological matter there is, as has been said, but little. We learn that among the Yeju no one is thought to have arrived at man's estate who has not killed a human being, and until he has done so a man may neither braid his hair nor wear ornaments nor enter into the married state. There is some interesting information also about the Axum ruins, where coins and bronze figurines seem to be waiting for some one to pick them up. Mr. Wylde's notes and measurements of the monoliths and sculptures were unfortunately lost; he has, therefore, little to say on the subject. He suggests that the object figured in Layard's *Nineveh*, i, 125, described as a firecone is really a trumie or shaddock. Scattered about the book are a number of notes on the physical features of the various peoples of the country. The general reader will find the book full of interesting information and eminently readable.

N. W. T.

Civilisation.

Cunningham.

An Essay on Western Civilisation in its Economic Aspects. Medieval and Modern Times. By W. Cunningham, D.D. Cambridge Historical Series. 133 pp. xii, 300. 3 maps. Price 4s. 6d.

This volume is a sequel to one dealing with the same subject in ancient times, comprises books 4, 5, and 6 of the complete work with an introduction, and begins with art. 71. Though it deals with a subject that possesses great interest for the anthropologist, it is not treated upon an anthropological method. The author gives little weight to the evidence of continuity in human affairs, which appears to anthropologists to be the real key to the problems of the history of mankind. We believe that nothing happens in history or in economics without a definite cause or that is not led up to by a long chain of circumstances gradually preparing the way for it. Nature produces no sudden original outbursts of new discovery. We do not, therefore, follow the author in his inference that the establishment of the Roman obedience in ecclesiastical affairs introduced new ideals into economics; nor that the Reformation of religion was in any sense a reversal of those ideals. So far as it had any relation with economics at all, it cannot be doubted that the Roman obedience exacted far too high a price for any supposititious benefits it conferred; and the Reformation, so far as it was economic, was a refusal to pay that price. Dr. Cunningham, who is Vicar of Great St. Mary's, appears to use the word "Christendom" as a synonym for the Roman obedience. He affects to look back with regret to the time

when the secular business of government was mainly in the hands of clerical functionaries, and says, oddly enough, "This attempt to control the life of man in all its aspects is of the very essence of the Christian religion. *Homo sum, et nihil humani a me alienum puto*, is the Divine Word to the world." It is certainly amusing to find the line that brought down the house in a comedy of Terence represented as being a "Divine Word," and used as a justification for a method of priestly government that no age and no people has ever yet found tolerable.

When Dr. Cunningham's work is viewed apart from his strange ecclesiastical proclivities, it is in all respects admirable. In Book VI, which deals mainly with the industrial progress of the last century, he is on firm ground. He there states briefly but clearly the conclusions which are developed at length in his excellent book on the growth of English industry. The work also embodies the substance of lectures delivered by him at Harvard University in 1899.

Switzerland: Physical Anthropology.

Schürch.

134 *Neue Beiträge zur Anthropologie der Schweiz.* Dr. Phil. Otto Schürch. Berne, Schmid und Francke, 1900.

The materials on which this book has been based are to be found in the museums and ossuaries of Central Switzerland, whence so much information with regard to the past history of Europe has been from time to time derived and published in such series of essays as these of Dr. Schürch. The author divides his monograph into five sections, each part being distinct in itself, yet in close association with the remainder. The first section deals with modern skulls of Central Switzerland obtained from Berne, Hasle, Altdorf, and neighbouring burial-grounds. In this evidence is produced that 85 per cent. of the modern Swiss are brachycephalic and only 2 per cent. or less dolichocephalic; similarly 80 to 90 per cent. are leptoprosopic and only 10 to 15 per cent. chamæprosopic. The second section deals with the correlation of the different facial indices proportions as met with in the successive historic eras and among the varied ethnic elements of the district studied by the author. The third section, on the proportions and relations of the alveoli and teeth in prehistoric and recent skulls, contains much matter of general anatomical as well as anthropological interest, the jaws and teeth of all races being dealt with on a comparative basis. The next part, on the wearing down of the teeth both in prehistoric and modern times, is of great importance from both pathological and sociological standpoints in view of questions as to liability to disease and the effects of a varied dietary on the teeth. In the fifth section certain prehistoric skulls and lower jaws are described in detail with full measurements and excellent photographic reproductions, many being of the natural size.

F. C. S.

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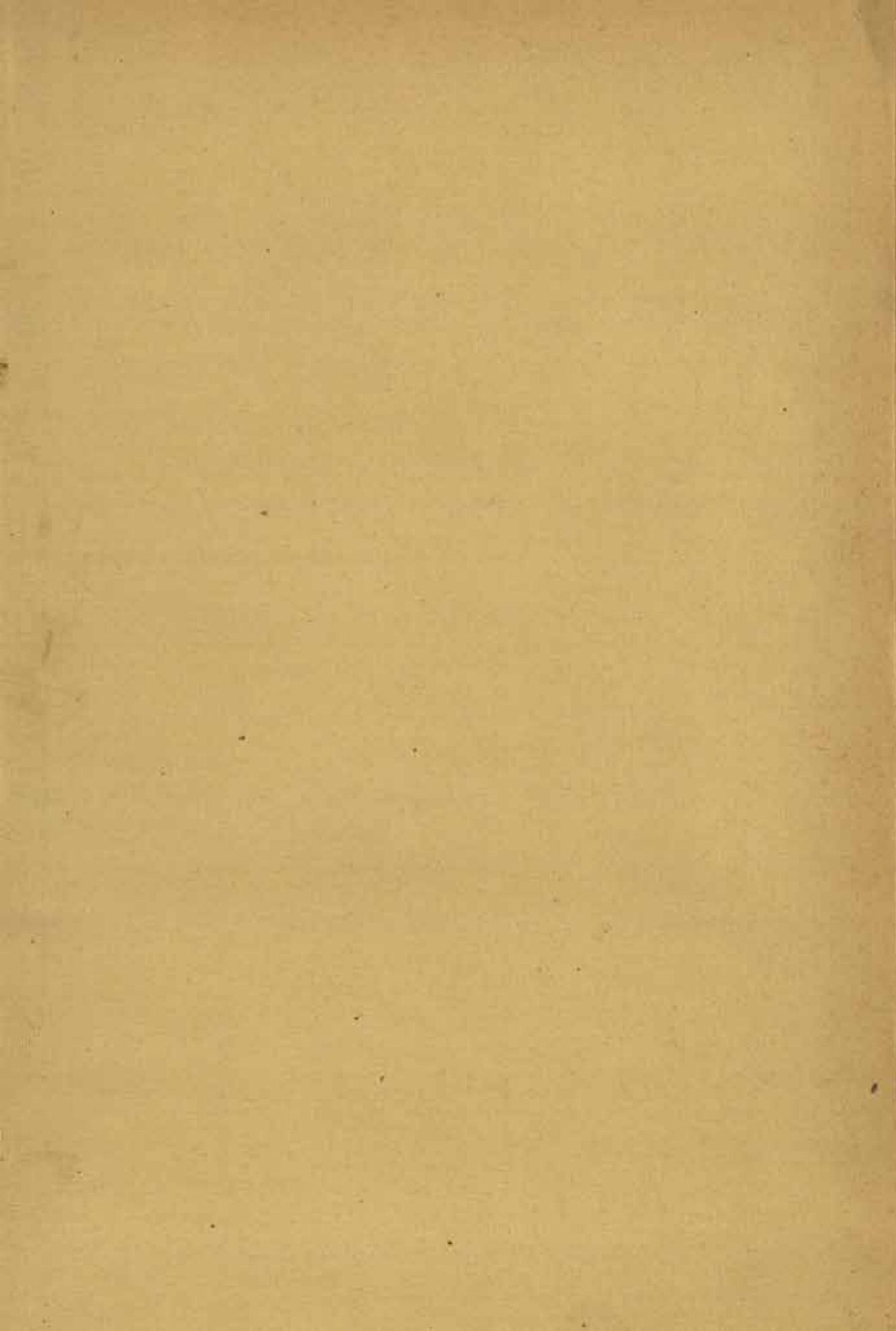
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